WESTERN BIRDS

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WESTERN BIRDS

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WESTERN BIRDS

Volume 12, Number 2, 1981

CHECKLIST OF THE BIRDS OF CALIFORNIA

California Bird Records Committee, Checklist Subcommittee

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The last checklist of the birds of California was published in this journal more than a decade ago (McCaskie et al. 1970). It listed 501 species. Shortly after its publication the California Bird Records Committee (hereafter CBRC) was formed to review records of noteworthy species from California, including those previously unrecorded in the state. The checklist presented here includes only those species which have passed the scrutiny of this committee.

The CBRC is composed of nine members, each elected to a 3-year term, and a secretary elected to a 1-year term. The species reviewed by the CBRC currently consist of those birds that have averaged four or fewer records per year over the past 10 years. These species are indicated in the list with an asterisk (*). Any submitted record receiving nine or ten favorable votes is considered valid and, if new to the state, is included on the state list. At the annual CBRC meeting in 1979 it was decided that some species, while not acceptable for inclusion on the main list, are of sufficient merit to be included in a separate unresolved category. A list of these species and the definition of the unresolved category follow the main list.

Since the publication of the last checklist many additional species have been accepted by the CBRC, some have been deleted and others have been added or deleted as a result of taxonomic revisions. The following 46 species have been added to the state list since the last checklist was published: Mottled Petrel, Cook's Petrel, Stejneger's Petrel, Streaked Shearwater, Greater Shearwater, Band-rumped Storm-Petrel, Red-tailed Tropicbird, Masked Booby, Red-footed Booby, Neotropic Cormorant, Bewick's Swan, Baikal Teal, Garganey, Mongolian Plover, Piping Plover, Eurasian Dotterel, Hudsonian Godwit, Red-necked Stint, Lesser Black-backed Gull, Sandwich Tern, Crested Auklet, Groove-billed Ani, Violet-crowned Hummingbird, Blue-throated Hummingbird, Red-headed Woodpecker, Yellow-bellied

Sapsucker, Eastern Wood-Pewee, Yellow-bellied Flycatcher, Acadian Flycatcher, Sulphur-bellied Flycatcher, Eurasian Skylark, Sedge Wren, Dusky Warbler, Northern Wheatear, Veery, Gray-cheeked Thrush, Rufous-backed Robin, Yellow Wagtail, White Wagtail, Sprague's Pipit, Golden-cheeked Warbler, Red-faced Warbler, Pyrrhuloxia, Le Conte's Sparrow, Common Grackle and White-winged Crossbill.

Four species have since been deleted from the 1970 checklist. These are the Cape Petrel, American Black Duck and Ringed Turtle-Dove, which have been placed in the unresolved category, and the Gray Partridge (*Perdix perdix*), which is not included on either list because there is no evidence that it was ever firmly established in a wild state in California.

Taxonomic revisions at the species level have resulted in a net loss of two species. Most authorities now believe the Red-naped Sapsucker, *Sphyrapicus nuchalis* in the 1970 Checklist, to be conspecific with Yellow-bellied Sapsucker (*Sphyrapicus varius*). Similarly, the Bewick's Swan, formerly *Cygnus bewickii*, is considered by most authorities to be conspecific with the Whistling Swan (*Cygnus columbianus*), and the Yellow-green Vireo, formerly *Vireo flavoviridis*, is now generally considered to be conspecific with the Red-eyed Vireo (*Vireo olivaceus*). On the other hand, recent evidence (Hand 1981; LeValley, unpubl. manus.; Devillers, unpubl. manus.) strongly suggests that the Yellow-footed Gull, formerly *Larus occidentalis livens*, of the Gulf of California is specifically distinct from the Western Gull (*L. occidentalis*). The net result is a list of 541 species accepted for inclusion on the California state list.

Since the publication of the Fifth Edition of the American Ornithologists' Union *Check-list of North American Birds* in 1957, much additional material has been gathered on the taxonomic relationships of birds at all levels. The California checklist reflects current trends in the field of avian taxonomy and attempts to approach closely the taxonomic treatment that will be adopted in the forthcoming Sixth Edition of the AOU Check-list. The taxonomy used here reflects the taxonomic treatments in numerous recently published papers and books, especially Volumes I (2nd ed., Mayr and Cottrell 1979) and VIII (Traylor 1979) of Peters' *Check-list of the Birds of the World*. Treatment of the families not covered in these two volumes has been based partly on Morony, Bock and Farrand's *Reference List of the Birds of the World* (1975) and numerous recent papers that deal with specific groups of birds.

English names used in the checklist follow those adopted by the American Birding Association (ABA) (1975 plus supplements) with several exceptions. Although the names chosen by the ABA, in general, reflect those in common usage, a few are considered inappropriate by the CBRC. In cases where the English names we have chosen differ from those adopted by the ABA we have included the ABA name in parentheses.

Species which have been introduced and subsequently established as viable wild populations in the state are indicated with an "I" following the species' name. The criterion for establishment is that the species has been shown to have a viable breeding population continually existing in the wild for 10 or more years. Those native species formerly occurring in the state but subsequently extirpated are indicated with an "E." The number of species occurring in California follows parenthetically the name of each family.

CHECKLIST OF THE BIRDS OF CALIFORNIA—1981

GAVIIDAE (4)

Red-throated Loon
Gavia stellata
Arctic Loon
Gavia arctica[1]
Common Loon
Gavia immer
* Yellow-billed Loon
Gavia adamsii

PODICIPEDIDAE (6)

* Least Grebe
Tachybaptus dominicus
Pied-billed Grebe
Podilymbus podiceps
Horned Grebe
Podiceps auritus
Red-necked Grebe
Podiceps grisegena
Eared Grebe
Podiceps nigricollis
Western Grebe
Aechmophorus occidentalis

DIOMEDEIDAE (4)

* Wandering Albatross
Diomedea exulans
* Short-tailed Albatross
Diomedea albatrus
Black-footed Albatross
Diomedea nigripes
* Laysan Albatross
Diomedea immutabilis

PROCELLARIIDAE (12)

Northern Fulmar
Fulmarus glacialis
* Mottled (Scaled) Petrel
Pterodroma inexpectata
* Cook's Petrel
Pterodroma cookii
* Stejneger's Petrel
Pterodroma longirostris
* Streaked Shearwater
Calonectris leucomelas
Pink-footed Shearwater
Puffinus creatopus
Flesh-footed Shearwater
Puffinus carneipes
* Greater Shearwater
Puffinus gravis
Buller's Shearwater
Puffinus bulleri
Sooty Shearwater
Puffinus griseus
Short-tailed Shearwater
Puffinus tenuirostris
Black-vented (Manx) Shearwater
Puffinus opisthomelas

HYDROBATIDAE (8)

* Wilson's Storm-Petrel
Oceanites oceanicus
Fork-tailed Storm-Petrel
Oceanodroma furcata
Leach's Storm-Petrel
Oceanodroma leucorhoa
Ashy Storm-Petrel
Oceanodroma homochroa
Black Storm-Petrel
Oceanodroma melania
* Band-rumped Storm-Petrel
Oceanodroma castro
* Wedge-rumped (Galapagos) Storm-Petrel
Oceanodroma tethys
Least Storm-Petrel
Oceanodroma microsoma

PHAETHONTIDAE (3)

* White-tailed Tropicbird
Phaethon lepturus
Red-billed Tropicbird
Phaethon aethereus
* Red-tailed Tropicbird
Phaethon rubricauda

SULIDAE (4)

* Masked Booby
Sula dactylatra
* Brown Booby
Sula leucogaster
Blue-footed Booby
Sula nebouxii
* Red-footed Booby
Sula sula

PELECANIDAE (2)

American White Pelican
Pelecanus erythrorhynchos
Brown Pelican
Pelecanus occidentalis

PHALACROCORACIDAE (4)

Double-crested Cormorant
Phalacrocorax auritus
* Neotropic (Olivaceous) Cormorant
Phalacrocorax olivaceus
Brandt's Cormorant
Phalacrocorax penicillatus
Pelagic Cormorant
Phalacrocorax pelagicus

FREGATIDAE (1)

Magnificent Frigatebird
Fregata magnificens

ARDEIDAE (12)

American Bittern
Botaurus lentiginosus
Least Bittern
Ixobrychus exilis
Great Blue Heron
Ardea herodias
Great Egret
Egretta alba
Snowy Egret
Egretta thula
Little Blue Heron
Egretta caerulea
Tricolored (Louisiana) Heron
Egretta tricolor
Reddish Egret
Egretta rufescens
Cattle Egret
Bubulcus ibis
Green Heron
Butorides striatus
Black-crowned Night-Heron
Nycticorax nycticorax
* Yellow-crowned Night-Heron
Nycticorax violaceus

THRESKIORNITHIDAE (3)

* White Ibis
Eudocimus albus
White-faced Ibis
Plegadis chihi
Roseate Spoonbill
Ajaia ajaja

CICONIIDAE[2] (1)

Wood Stork
Mycteria americana

ANATIDAE (41)

Fulvous Whistling-Duck
Dendrocygna bicolor
* Black-bellied Whistling-Duck
Dendrocygna autumnalis
Tundra (Whistling) Swan
Cygnus columbianus
* Trumpeter Swan
Cygnus buccinator
Greater White-fronted Goose
Anser albifrons
Snow Goose
Anser caerulescens
Ross' Goose
Anser rossii
Emperor Goose
Anser canagicus
Brant
Branta bernicla
Canada Goose
Branta canadensis
Wood Duck
Aix sponsa
Eurasian Wigeon
Anas penelope
American Wigeon
Anas americana
Gadwall
Anas strepera
* Baikal Teal
Anas formosa
Green-winged Teal
Anas crecca
Mallard
Anas platyrhynchos
Northern (Common) Pintail
Anas acuta
* Garganey
Anas querquedula
Blue-winged Teal
Anas discors
Cinnamon Teal
Anas cyanoptera
Northern Shoveler
Anas clypeata
Canvasback
Aythya valisineria
Redhead
Aythya americana

Ring-necked Duck
Aythya collaris
* Tufted Duck
Aythya fuligula
Greater Scaup
Aythya marila
Lesser Scaup
Aythya affinis
* King Eider
Somateria spectabilis
Harlequin Duck
Histrionicus histrionicus
Oldsquaw
Clangula hyemalis
Black Scoter
Melanitta nigra
Surf Scoter
Melanitta perspicillata
White-winged Scoter
Melanitta fusca
Bufflehead
Bucephala albeola
Barrow's Goldeneye
Bucephala islandica
Common Goldeneye
Bucephala clangula
Hooded Merganser
Mergus cucullatus
Red-breasted Merganser
Mergus serrator
Common Merganser
Mergus merganser
Ruddy Duck
Oxyura jamaicensis

CATHARTIDAE (2)

Turkey Vulture
Cathartes aura
California Condor
Gymnogyps californianus

ACCIPITRIDAE (17)

Osprey
Pandion haliaetus
Black-shouldered (White-tailed) Kite
Elanus caeruleus
* Mississippi Kite
Ictinia mississippiensis
Bald Eagle
Haliaeetus leucocephalus
Northern Harrier
Circus cyaneus
Sharp-shinned Hawk
Accipiter striatus
Cooper's Hawk
Accipiter cooperii
Northern Goshawk
Accipiter gentilis
* Bay-winged (Harris') Hawk
Parabuteo unicinctus E
Red-shouldered Hawk
Buteo lineatus
Broad-winged Hawk
Buteo platypterus
Swainson's Hawk
Buteo swainsoni
* Zone-tailed Hawk
Buteo albonotatus
Red-tailed Hawk
Buteo jamaicensis
Ferruginous Hawk
Buteo regalis
Rough-legged Hawk
Buteo lagopus
Golden Eagle
Aquila chrysaetos

FALCONIDAE (5)

American Kestrel
Falco sparverius
Merlin
Falco columbarius
Peregrine Falcon
Falco peregrinus
* Gyrfalcon
Falco rusticolus
Prairie Falcon
Falco mexicanus

PHASIANIDAE (10)

Chukar
Alectoris chukar I
Ring-necked Pheasant
Phasianus colchicus I
Blue Grouse
Dendragapus obscurus
Ruffed Grouse
Bonasa umbellus
Sage Grouse
Centrocercus urophasianus
* Sharp-tailed Grouse
Tympanuchus phasianellus E
Common (Wild) Turkey
Meleagris gallopavo I
Gambel's Quail
Callipepla gambelii

California Quail
Callipepla californica
Mountain Quail
Oreortyx pictus

RALLIDAE (8)

* Yellow Rail
Coturnicops noveboracensis
Black Rail
Laterallus jamaicensis
Clapper Rail
Rallus longirostris
Virginia Rail
Rallus limicola
Sora
Porzana carolina
* Purple Gallinule
Porphyrio martinicus
Common Gallinule
Gallinula chloropus
American Coot
Fulica americana

GRUIDAE (1)

Sandhill Crane
Grus canadensis

CHARADRIIDAE (10)

Black-bellied Plover
Pluvialis squatarola
Lesser Golden-Plover
Pluvialis dominica
* Mongolian Plover
Charadrius mongolus
Snowy Plover
Charadrius alexandrinus
* Wilson's Plover
Charadrius wilsonia
Semipalmated Plover
Charadrius semipalmatus
* Piping Plover
Charadrius melodus
Killdeer
Charadrius vociferus
Mountain Plover
Charadrius montanus
* Eurasian Dotterel (Dotterel)
Charadrius morinellus

HAEMATOPODIDAE (2)

* American Oystercatcher
Haematopus palliatus
Black Oystercatcher
Haematopus bachmani

RECURVIROSTRIDAE (2)

Black-necked Stilt
Himantopus mexicanus
American Avocet
Recurvirostra americana

SCOLOPACIDAE (38)

Greater Yellowlegs
Tringa melanoleuca
Lesser Yellowlegs
Tringa flavipes
Solitary Sandpiper
Tringa solitaria
Willet
Catoptrophorus semipalmatus
Wandering Tattler
Heteroscelus incanus
Spotted Sandpiper
Actitis macularia
* Upland Sandpiper
Bartramia longicauda
Whimbrel
Numenius phaeopus
Long-billed Curlew
Numenius americanus
* Hudsonian Godwit
Limosa haemastica
* Bar-tailed Godwit
Limosa lapponica
Marbled Godwit
Limosa fedoa
Ruddy Turnstone
Arenaria interpres
Black Turnstone
Arenaria melanocephala
Surfbird
Aphriza virgata
Red Knot
Calidris canutus
Sanderling
Calidris alba
Semipalmated Sandpiper
Calidris pusilla
Western Sandpiper
Calidris mauri
* Red-necked (Rufous-necked) Stint
Calidris ruficollis
Least Sandpiper
Calidris minutilla
* White-rumped Sandpiper
Calidris fuscicollis

Baird's Sandpiper
Calidris bairdii
Pectoral Sandpiper
Calidris melanotos
Sharp-tailed Sandpiper
Calidris acuminata
Rock Sandpiper
Calidris ptilocnemis
Dunlin
Calidris alpina
• Curlew Sandpiper
Calidris ferruginea
Stilt Sandpiper
Calidris himantopus
• Buff-breasted Sandpiper
Tryngites subruficollis
Ruff
Philomachus pugnax
Short-billed Dowitcher
Limnodromus griseus
Long-billed Dowitcher
Limnodromus scolopaceus
• Jack Snipe (European Jacksnipe)
Lymnocryptes minimus
Common Snipe
Gallinago gallinago
Wilson's Phalarope
Phalaropus tricolor
Northern Phalarope
Phalaropus lobatus
Red Phalarope
Phalaropus fulicarius

LARIDAE (32)

Pomarine Jaeger
Stercorarius pomarinus
Parasitic Jaeger
Stercorarius parasiticus
Long-tailed Jaeger
Stercorarius longicaudus
South Polar Skua
Catharacta maccormicki
Laughing Gull
Larus atricilla
Franklin's Gull
Larus pipixcan
• Little Gull
Larus minutus
• Common Black-headed Gull (Black-headed Gull)
Larus ridibundus
Bonaparte's Gull
Larus philadelphia
Heermann's Gull
Larus heermanni
Mew Gull
Larus canus
Ring-billed Gull
Larus delawarensis
California Gull
Larus californicus
Herring Gull
Larus argentatus
Thayer's Gull
Larus thayeri
• Lesser Black-backed Gull
Larus fuscus
Western Gull
Larus occidentalis
Yellow-footed Gull
Larus livens
Glaucous-winged Gull
Larus glaucescens
Glaucous Gull
Larus hyperboreus
Black-legged Kittiwake
Rissa tridactyla
Sabine's Gull
Xema sabini
Gull-billed Tern
Sterna nilotica
Caspian Tern
Sterna caspia
Royal Tern
Sterna maxima
Elegant Tern
Sterna elegans
• Sandwich Tern
Sterna sandvicensis
Common Tern
Sterna hirundo
Arctic Tern
Sterna paradisaea
Forster's Tern
Sterna forsteri
Least (Little) Tern
Sterna albifrons
Black Marsh-Tern (Black Tern)
Chlidonias niger

RYNCHOPIDAE (1)

Black Skimmer
Rynchops niger

ALCIDAE (13)

Common (Thin-billed) Murre
Uria aalge
* Thick-billed Murre
Uria lomvia
Pigeon Guillemot
Cepphus columba
Marbled Murrelet
Brachyramphus marmoratus
Xantus' Murrelet
Endomychura hypoleuca
Craveri's Murrelet
Endomychura craveri
Ancient Murrelet
Synthliboramphus antiquus
Cassin's Auklet
Ptychoramphus aleuticus
* Parakeet Auklet
Cyclorrhynchus psittacula
* Crested Auklet
Aethia cristatella
Rhinoceros Auklet
Cerorhinca monocerata
Tufted Puffin
Lunda cirrhata
Horned Puffin
Fratercula corniculata

COLUMBIDAE (7)

Rock Pigeon (Rock Dove)
Columba livia I
Band-tailed Pigeon
Columba fasciata
Spotted Dove
Streptopelia chinensis I
White-winged Dove
Zenaida asiatica
Mourning Dove
Zenaida macroura
Inca Dove
Columbina inca
Common Ground-Dove
Columbina passerina

CUCULIDAE (4)

* Black-billed Cuckoo
Coccyzus erythropthalmus
Yellow-billed Cuckoo
Coccyzus americanus
Greater Roadrunner
Geococcyx californianus
* Groove-billed Ani
Crotophaga sulcirostris

TYTONIDAE (1)

Common Barn-Owl (Barn Owl)
Tyto alba

STRIGIDAE (12)

Flammulated Owl (Flammulated Screech Owl)
Otus flammeolus
Common Screech-Owl
Otus asio
Great Horned Owl
Bubo virginianus
* Snowy Owl
Nyctea scandiaca
Northern Pygmy-Owl
Glaucidium gnoma
Elf Owl
Micrathene whitneyi
Burrowing Owl
Athene cunicularia
Spotted Owl
Strix occidentalis
Great Gray Owl
Strix nebulosa
Long-eared Owl
Asio otus
Short-eared Owl
Asio flammeus
Northern Saw-whet Owl (Saw-whet Owl)
Aegolius acadicus

CAPRIMULGIDAE (4)

Lesser Nighthawk
Chordeiles acutipennis
Common Nighthawk
Chordeiles minor
Common Poorwill (Poor-will)
Phalaenoptilus nuttallii
Whip-poor-will
Caprimulgus vociferus

APODIDAE (4)

Black Swift
Cypseloides niger
Chimney Swift
Chaetura pelagica
Vaux's Swift
Chaetura vauxi
White-throated Swift
Aeronautes saxatalis

TROCHILIDAE (10)

* Broad-billed Hummingbird
  Cynanthus latirostris
* Violet-crowned Hummingbird
  Amazilia violiceps
* Blue-throated Hummingbird
  Lampornis clemenciae
Black-chinned Hummingbird
  Archilochus alexandri
Anna's Hummingbird
  Calypte anna
Costa's Hummingbird
  Calypte costae
Calliope Hummingbird
  Stellula calliope
Broad-tailed Hummingbird
  Selasphorus platycercus
Rufous Hummingbird
  Selasphorus rufus
Allen's Hummingbird
  Selasphorus sasin

ALCEDINIDAE (1)

Belted Kingfisher
  Ceryle alcyon

PICIDAE (15)

Lewis' Woodpecker
  Melanerpes lewis
* Red-headed Woodpecker
  Melanerpes erythrocephalus
Acorn Woodpecker
  Melanerpes formicivorus
Gila Woodpecker
  Melanerpes uropygialis
Yellow-bellied Sapsucker
  Sphyrapicus varius
Red-breasted Sapsucker
  Sphyrapicus ruber
Williamson's Sapsucker
  Sphyrapicus thyroideus
Ladder-backed Woodpecker
  Picoides scalaris
Nuttall's Woodpecker
  Picoides nuttallii
Downy Woodpecker
  Picoides pubescens
Hairy Woodpecker
  Picoides villosus
White-headed Woodpecker
  Picoides albolarvatus
Black-backed (Black-backed Three-toed) Woodpecker
  Picoides arcticus
Common Flicker
  Colaptes auratus
Pileated Woodpecker
  Dryocopus pileatus

TYRANNIDAE (27)

Olive-sided Flycatcher
  Contopus borealis
* Greater Pewee (Coues' Flycatcher)
  Contopus pertinax
Western Wood-Pewee (Western Pewee)
  Contopus sordidulus
* Eastern Wood-Pewee (Eastern Pewee)
  Contopus virens
* Yellow-bellied Flycatcher
  Empidonax flaviventris
* Acadian Flycatcher
  Empidonax virescens
Willow Flycatcher
  Empidonax traillii
Least Flycatcher
  Empidonax minimus
Hammond's Flycatcher
  Empidonax hammondii
Dusky Flycatcher
  Empidonax oberholseri
Gray Flycatcher
  Empidonax wrightii
Western Flycatcher
  Empidonax difficilis
Black Phoebe
  Sayornis nigricans
Eastern Phoebe
  Sayornis phoebe
Say's Phoebe
  Sayornis saya
Vermilion Flycatcher
  Pyrocephalus rubinus
* Dusky-capped (Olivaceous) Flycatcher
  Myiarchus tuberculifer
Ash-throated Flycatcher
  Myiarchus cinerascens
* Great Crested Flycatcher
  Myiarchus crinitus
Brown-crested (Wied's Crested) Flycatcher
  Myiarchus tyrannulus
* Sulphur-bellied Flycatcher
  Myiodynastes luteiventris
Tropical Kingbird
  Tyrannus melancholicus
Cassin's Kingbird
  Tyrannus vociferans

* Thick-billed Kingbird
Tyrannus crassirostris
Western Kingbird
Tyrannus verticalis
Eastern Kingbird
Tyrannus tyrannus
* Scissor-tailed Flycatcher
Tyrannus forficatus

ALAUDIDAE (2)

* Eurasian (Common) Skylark
Alauda arvensis
Horned Lark
Eremophila alpestris

HIRUNDINIDAE (7)

Purple Martin
Progne subis
Tree Swallow
Tachycineta bicolor
Violet-green Swallow
Tachycineta thalassina
Rough-winged Swallow
Stelgidopteryx ruficollis
Bank Swallow
Riparia riparia
Cliff Swallow
Hirundo pyrrhonota
Barn Swallow
Hirundo rustica

CORVIDAE (10)

Gray Jay
Perisoreus canadensis
Steller's Jay
Cyanocitta stelleri
* Blue Jay
Cyanocitta cristata
Scrub Jay
Aphelocoma coerulescens
Pinyon Jay
Gymnorhinus cyanocephalus
Clark's Nutcracker
Nucifraga columbiana
Black-billed Magpie
Pica pica
Yellow-billed Magpie
Pica nuttalli
American Crow
Corvus brachyrhynchos
Common (Northern) Raven
Corvus corax

PARIDAE (4)

Black-capped Chickadee
Parus atricapillus
Mountain Chickadee
Parus gambeli
Chestnut-backed Chickadee
Parus rufescens
Plain Titmouse
Parus inornatus

REMIZIDAE (1)

Verdin
Auriparus flaviceps

AEGITHALIDAE (1)

Bushtit
Psaltriparus minimus

SITTIDAE (3)

Red-breasted Nuthatch
Sitta canadensis
White-breasted Nuthatch
Sitta carolinensis
Pygmy Nuthatch
Sitta pygmaea[3]

CERTHIIDAE (1)

Brown Creeper
Certhia familiaris

TROGLODYTIDAE (8)

Cactus Wren
Campylorhynchus bruneicapillus
Rock Wren
Salpinctes obsoletus
Canyon Wren
Catherpes mexicanus
Bewick's Wren
Thryomanes bewickii
House Wren
Troglodytes aedon
Winter Wren
Troglodytes troglodytes
* Sedge Wren
Cistothorus platensis
Marsh Wren
Cistothorus palustris

CINCLIDAE (1)

American (North American) Dipper
Cinclus mexicanus

MUSCICAPIDAE (18)

* Dusky Warbler
  Phylloscopus fuscatus
Golden-crowned Kinglet
  Regulus satrapa
Ruby-crowned Kinglet
  Regulus calendula
Blue-gray Gnatcatcher
  Polioptila caerulea
Black-tailed Gnatcatcher
  Polioptila melanura
Western Bluebird
  Sialia mexicana
Mountain Bluebird
  Sialia currucoides
Townsend's Solitaire
  Myadestes townsendi
* Northern Wheatear
  Oenanthe oenanthe
* Veery
  Catharus fuscescens
* Gray-cheeked Thrush
  Catharus minimus
Swainson's Thrush
  Catharus ustulatus
Hermit Thrush
  Catharus guttatus
* Wood Thrush
  Hylocichla mustelina
* Rufous-backed Robin (Rufous-backed Thrush)
  Turdus rufopalliatus
American Robin
  Turdus migratorius
Varied Thrush
  Ixoreus naevius
Wrentit
  Chamaea fasciata

MIMIDAE (9)

* Gray Catbird
  Dumetella carolinensis
Northern Mockingbird
  Mimus polyglottos
Sage Thrasher
  Oreoscoptes montanus
Brown Thrasher
  Toxostoma rufum
Bendire's Thrasher
  Toxostoma bendirei
* Curve-billed Thrasher
  Toxostoma curvirostre
California Thrasher
  Toxostoma redivivum
Crissal Thrasher
  Toxostoma dorsale
Le Conte's Thrasher
  Toxostoma lecontei

MOTACILLIDAE (5)

* Yellow Wagtail
  Motacilla flava
* White Wagtail
  Motacilla alba[4]
* Red-throated Pipit
  Anthus cervinus
Water Pipit
  Anthus spinoletta
* Sprague's Pipit
  Anthus spragueii

BOMBYCILLIDAE (2)

Bohemian Waxwing
  Bombycilla garrulus
Cedar Waxwing
  Bombycilla cedrorum

PTILOGONATIDAE (1)

Phainopepla
  Phainopepla nitens

LANIIDAE (2)

Northern Shrike
  Lanius excubitor
Loggerhead Shrike
  Lanius ludovicianus

STURNIDAE (1)

European Starling
  Sturnus vulgaris I

VIREONIDAE (9)

* White-eyed Vireo
  Vireo griseus
Bell's Vireo
  Vireo bellii
Gray Vireo
  Vireo vicinior
Solitary Vireo
  Vireo solitarius
* Yellow-throated Vireo
  Vireo flavifrons
Hutton's Vireo
  Vireo huttoni
Warbling Vireo
  Vireo gilvus

* Philadelphia Vireo
Vireo philadelphicus
Red-eyed Vireo
Vireo olivaceus

EMBERIZIDAE (95)

* Blue-winged Warbler
Vermivora pinus
* Golden-winged Warbler
Vermivora chrysoptera
Tennessee Warbler
Vermivora peregrina
Orange-crowned Warbler
Vermivora celata
Nashville Warbler
Vermivora ruficapilla
Virginia's Warbler
Vermivora virginiae
Lucy's Warbler
Vermivora luciae
Northern Parula (Northern Parula Warbler)
Parula americana
Yellow Warbler
Dendroica petechia
Magnolia Warbler
Dendroica magnolia
Cape May Warbler
Dendroica tigrina
Black-throated Blue Warbler
Dendroica caerulescens
Yellow-rumped Warbler
Dendroica coronata
Black-throated Gray Warbler
Dendroica nigrescens
Townsend's Warbler
Dendroica townsendi
Hermit Warbler
Dendroica occidentalis
Black-throated Green Warbler
Dendroica virens
* Golden-cheeked Warbler
Dendroica chrysoparia
Blackburnian Warbler
Dendroica fusca
* Yellow-throated Warbler
Dendroica dominica
* Grace's Warbler
Dendroica graciae
* Pine Warbler
Dendroica pinus
Prairie Warbler
Dendroica discolor
Palm Warbler
Dendroica palmarum
Chestnut-sided Warbler
Dendroica pensylvanica
Bay-breasted Warbler
Dendroica castanea
Blackpoll Warbler
Dendroica striata
* Cerulean Warbler
Dendroica cerulea
Black-and-white Warbler
Mniotilta varia
American Redstart
Setophaga ruticilla
* Prothonotary Warbler
Protonotaria citrea
* Worm-eating Warbler
Helmitheros vermivorus
Ovenbird
Seiurus aurocapillus
Northern Waterthrush
Seiurus noveboracensis
* Louisiana Waterthrush
Seiurus motacilla
* Kentucky Warbler
Oporornis formosus
* Connecticut Warbler
Oporornis agilis
* Mourning Warbler
Oporornis philadelphia
MacGillivray's Warbler
Oporornis tolmiei
Common Yellowthroat
Geothlypis trichas
Hooded Warbler
Wilsonia citrina
Wilson's Warbler
Wilsonia pusilla
Canada Warbler
Wilsonia canadensis
* Red-faced Warbler
Cardellina rubrifrons
Painted Redstart
Myioborus pictus
Yellow-breasted Chat
Icteria virens
Hepatic Tanager
Piranga flava
Summer Tanager
Piranga rubra
* Scarlet Tanager
Piranga olivacea
Western Tanager
Piranga ludoviciana

* Northern Cardinal
Cardinalis cardinalis
* Pyrrhuloxia
Cardinalis sinuatus
Rose-breasted Grosbeak
Pheucticus ludovicianus
Black-headed Grosbeak
Pheucticus melanocephalus
Blue Grosbeak
Guiraca caerulea
Lazuli Bunting
Passerina amoena
Indigo Bunting
Passerina cyanea
* Varied Bunting
Passerina versicolor
* Painted Bunting
Passerina ciris
Dickcissel
Spiza americana
McCown's Longspur
Calcarius mccownii
Lapland Longspur
Calcarius lapponicus
Chestnut-collared Longspur
Calcarius ornatus
Snow Bunting
Plectrophenax nivalis
Lark Bunting
Calamospiza melanocorys
Fox Sparrow
Passerella iliaca
Song Sparrow
Melospiza melodia
Lincoln's Sparrow
Melospiza lincolnii
Swamp Sparrow
Melospiza georgiana
White-throated Sparrow
Zonotrichia albicollis
Golden-crowned Sparrow
Zonotrichia atricapilla
White-crowned Sparrow
Zonotrichia leucophrys
Harris' Sparrow
Zonotrichia querula
Dark-eyed (Northern) Junco
Junco hyemalis
American Tree Sparrow
Spizella arborea
Chipping Sparrow
Spizella passerina
Clay-colored Sparrow
Spizella pallida
Brewer's Sparrow
Spizella breweri
* Field Sparrow
Spizella pusilla
Black-chinned Sparrow
Spizella atrogularis
Savannah Sparrow
Ammodramus sandwichensis
* Sharp-tailed Sparrow
Ammodramus caudacutus
* Le Conte's Sparrow
Ammodramus leconteii
* Baird's Sparrow
Ammodramus bairdii
Grasshopper Sparrow
Ammodramus savannarum
Vesper Sparrow
Pooecetes gramineus
Lark Sparrow
Chondestes grammacus
Black-throated Sparrow
Amphispiza bilineata
Sage Sparrow
Amphispiza belli
* Cassin's Sparrow
Aimophila cassinii
Rufous-crowned Sparrow
Aimophila ruficeps
Green-tailed Towhee
Pipilo chlorurus
Rufous-sided Towhee
Pipilo erythrophthalmus
Brown Towhee
Pipilo fuscus
Abert's Towhee
Pipilo aberti

ICTERIDAE (16)

* Streak-backed (Scarlet-headed) Oriole
Icterus pustulatus
Hooded Oriole
Icterus cucullatus
Northern Oriole
Icterus galbula
Orchard Oriole
Icterus spurius
Scott's Oriole
Icterus parisorum
Yellow-headed Blackbird
Xanthocephalus xanthocephalus
Red-winged Blackbird
Agelaius phoeniceus
Tricolored Blackbird
Agelaius tricolor

Western Meadowlark
Sturnella neglecta
Great-tailed Grackle
Quiscalus mexicanus
* Common Grackle
Quiscalus quiscula
Rusty Blackbird
Euphagus carolinus
Brewer's Blackbird
Euphagus cyanocephalus
Bronzed Cowbird
Molothrus aeneus
Brown-headed Cowbird
Molothrus ater
Bobolink
Dolichonyx oryzivorus

FRINGILLIDAE (13)

Pine Siskin
Carduelis pinus
American Goldfinch
Carduelis tristis
Lesser Goldfinch
Carduelis psaltria
Lawrence's Goldfinch
Carduelis lawrencei
* Common Redpoll
Carduelis flammea
Rosy Finch
Leucosticte arctoa
Purple Finch
Carpodacus purpureus
Cassin's Finch
Carpodacus cassinii
House Finch
Carpodacus mexicanus
Pine Grosbeak
Pinicola enucleator
Red Crossbill
Loxia curvirostra
* White-winged Crossbill
Loxia leucoptera
Evening Grosbeak
Coccothraustes vespertinus

PASSERIDAE (1)

House Sparrow
Passer domesticus I

[1]The eastern Pacific subspecies *Gavia arctica pacifica* was treated as specifically distinct from the Palearctic forms *Gavia arctica viridigularis* and *G. a. arctica* in the 1970 California checklist and called the Pacific Loon.
[2]Ciconiidae was inadvertently placed in Ardeidae in the 1970 California checklist.
[3]*Sitta pygmaea* was combined with *Sitta pusilla* and called Pine Nuthatch in the 1970 California checklist.
[4]Morlan (1981) has determined that of the five records of White Wagtail from California two are of *Motacilla alba lugens*. The other three cannot be assigned to a subspecies. Recent evidence from Soviet research strongly suggests that *lugens* seldom interbreeds with other forms of *Motacilla alba* and may, in fact, be a separate species, *Motacilla lugens*, the Black-backed Wagtail.

Records of the following species, not included on the main list, remain unresolved after full consideration by the CBRC. The unresolved category is defined as follows: If at a meeting of the CBRC a record of a species not on the main list is neither accepted (all or all but one "accept" votes) nor rejected ("reject" votes from a majority of the members present), the case shall be considered unresolved and the species shall be added to the unresolved category.

1. Cape Petrel (*Daption capense*). One was seen off Monterey on 9 September 1962 (McCaskie 1970). Because of the briefness of observation and lack of acceptable records from temperate Northern Hemisphere waters, this species is not included on the main list (six votes in favor of inclusion on the main list, four votes for inclusion in the unresolved category).

2. American Anhinga (*Anhinga anhinga*). One (possibly two) seen in and near San Francisco, 28-30 May and 2 June 1939 (three votes for main list,

five votes for unresolved category, two votes to reject from all lists). Another American Anhinga was present at Sweetwater Reservoir, San Diego, from 4 February 1977 until at least early 1981 (four votes for main list, six votes for unresolved category). These birds may well have escaped from captivity.

3. American Black Duck (*Anas rubripes*). All records are suspect because of the possibility that they pertain to escaped captives or released game stock. There are few, if any, records of clearly wild individuals from west of the Rocky Mountains (one vote for main list, nine votes for unresolved category).

4. Black Vulture (*Coragyps atratus*). One seen with Turkey Vultures near Chico, Butte Co., on 13 April 1972 may have been an escapee or released bird (five votes for main list, five votes for unresolved category).

5. Black-tailed Gull (*Larus crassirostris*). One found in San Diego Bay on 26 November 1954 (Monroe 1955) is suspected of having been ship-transported since this western Pacific species is not highly migratory (McCaskie et al. 1970:24). There is, however, one recent record for western Alaska (seven votes for unresolved category, three votes to reject from all lists).

6. Kittlitz's Murrelet (*Brachyramphus brevirostris*). A dying bird in juvenal plumage was found on the beach near San Diego on 16 August 1969 (Devillers 1972). Because of the early date and the bird's age it may be more likely a ship-transported bird (one vote for main list, eight votes for unresolved category, one vote to reject from all lists).

7. Ringed Turtle-Dove (*Streptopelia roseogrisea*[5]). The small population in downtown Los Angeles has never increased in numbers nor has it expanded into outlying areas. It may not therefore be a self-sustaining population, but rather, dependent on handouts and supplemental release of birds from captivity. This species has become locally established in many cities throughout the world in a feral state but according to Goodwin, " . . . such colonies seldom prosper unless they are artificially fed and [their numbers regularly supplemented] by the liberation of young bred in captivity" (three votes for main list, six votes for unresolved category, one vote to reject from all lists).

8. Green Violetear (*Colubri thalassinus*). There is one documented record from Mt. Pinos, 31 July to 1 August 1978. Since there is no precedent for the occurrence of this species in northwestern Mexico, Arizona or New Mexico, it has been placed in the unresolved category as perhaps pertaining to an escaped captive (eight votes for unresolved category, two votes to reject from all lists).

The following 11 species are still pending before the CBRC as of October 1981: Black-browed Albatross (*Diomedea melanophris*), Cape Petrel (*Daption capense*) (Monterey, 1962; resubmitted on basis of new information), Solander's Petrel (*Pterodroma solandri*), American Anhinga (*Anhinga anhinga*) (Colorado River, 1913), Black Vulture (*Coragyps atratus*) (Col-

[5]The Ringed Turtle-Dove (also known as the Barbary Dove) is the domesticated form of the African Collared-Dove *Streptopelia roseogrisea*. Although the name *risoria* has been used to describe this domestic variety for years by researchers and pigeon fanciers, it is technically incorrect. The correct name is *roseogrisea* (Goodwin 1970).

orado River, 1977), White-tailed Ptarmigan (*Lagopus leucurus*) (introduced to the Sierra Nevada in 1971), Gray-tailed Tattler (*Heteroscelus brevipes*), Great Black-backed Gull (*Larus marinus*), Red-legged Kittiwake (*Rissa brevirostris*), Least Auklet (*Aethia pusilla*), and White-collared Seedeater (*Sporophila torqueola*).

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LITERATURE CITED

American Birding Association. 1975. A.B.A. checklist: Birds of continental United States and Canada. Am. Birding Assoc., Austin, TX.

American Ornithologists' Union. 1957. Check-list of North American birds, 5th ed. Am. Ornithol. Union, Baltimore, MD.

Devillers, P. 1972. The juvenal plumage of Kittlitz's Murrelet. Calif. Birds 3:33-38.

Devillers, P. Unpubl. manus. Plumages and relationships of the Western Gulls and their allies.

Goodwin, D. 1970. Pigeons and doves of the world, 2nd ed. British Museum, London.

Hand, J. 1981. A comparison of the vocalizations of Western Gulls (*Larus occidentalis occidentalis* and *L. o. livens*). Condor in press.

LeValley, R.R. 1980. The plumage sequence and taxonomy of the Yellow-footed Western Gull (*Larus occidentalis livens*). M.S. thesis, Humboldt State Univ., Arcata, CA.

McCaskie, G. 1970. Cape Petrel off Monterey, California. Calif. Birds 1:39-40.

McCaskie, G., P. Devillers, A.M. Craig, C.R. Lyons, V.P. Coughran and J.T. Craig. 1970. A checklist of the birds of California. Calif. Birds 1:4-28.

Mayr, E., and G.W. Cottrell, ed. 1979. Check-list of birds of the world, Vol. 1. 2nd ed. Mus. Comp. Zool., Cambridge, MA.

Monroe, B.L. Jr. 1955. A gull new to North America. Auk 72:208.

Morlan, J. 1981. Status and identification of forms of White Wagtail in western North America. Cont. Birdlife 2:37-50.

Morony, J.J. Jr., W.J. Bock and J. Farrand Jr. 1975. Reference list of birds of the world. Am. Mus. Nat. Hist., New York.

Traylor, M.A. Jr., ed. 1979. Check-list of birds of the world, Vol. 8. Mus. Comp. Zool., Cambridge, MA.

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BREEDING AVIFAUNAS OF THE NEW YORK MOUNTAINS AND KINGSTON RANGE: ISLANDS OF CONIFERS IN THE MOJAVE DESERT OF CALIFORNIA

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Quantification of species turnover rates on islands in the context of the equilibrium theory of island biogeography (MacArthur and Wilson 1967) depends on accurate inventories of the biota taken at appropriate intervals in time. Inaccurate historical data concerning species composition is a source of error that must be avoided when calculating turnover rates (Lynch and Johnson 1974). Johnson's (1974) analysis of historical changes in species composition and abundance exemplifies the importance of sound avifaunal inventories for later comparison. In this paper, we present data to provide future researchers with a baseline from which to calculate turnover rates for the breeding avifaunas of two conifer "islands" in the Mojave Desert in California.

Island biogeography of isolated mountain ranges forming conifer "islands" in the Great Basin has been studied by Brown (1971, 1978) for mammals and Johnson (1975) for birds. An analysis of breeding bird turnover rates for a conifer island in the Mojave Desert (Clark Mountain, California) is in progress (N.K. Johnson pers. comm.). Detailed and accurate surveys of the breeding avifaunas of the Sheep and Spring ranges of southwestern Nevada (Johnson 1965) and the Providence Mountains, San Bernardino Co., California (Johnson et al. 1948) provide data from other Mojave Desert ranges for comparison with data we present below.

STUDY AREAS

New York Mountains. The New York Mountains extend from about 14 km west of Cima east to the Nevada border in extreme eastern San Bernardino Co., California. The highest point, New York Peak (7532 ft = 2296 m), is 39.5 km southeast of Clark Mountain (7929 ft = 2417 m) and 118 km south of Charleston Peak (11,919 ft = 3633 m) in the Spring Mountains of Nevada. Open pinyon-juniper woodland extends from the base at about 5500 ft (1675 m) to the summit, with tree height varying from an average of about 4 m in drier, exposed locations to about 8 m in more sheltered spots. Utah Junipers *(Juniperus osteosperma)* become scarce above about 6500 ft, leaving Single-leaf Pinyon *(Pinus monophylla)* virtually the sole tree above this elevation. Nearly pure stands of Canyon Live Oak *(Quercus chrysolepis)* of about 0.3 ha are found in both Live Oak and Caruthers canyons. Some trees reach 9 m in height. Scattered individuals and smaller groves of Canyon Live Oak are also found in Keystone, Sagamore and Fourth of July canyons. Scrub oak *(Q. turbinella)* forms some dense thickets in these same canyons. To our knowledge, neither oak species is found in nearby ranges such as the Kingston Range and Clark Mountain, but a few isolated clumps of Canyon Live Oak can be found in the Providence Mountains and small

groves are present in the Granite Mountains just west of the Providence Mountains. A few small springs and open mine shafts may provide year-round water, at least during wetter-than-average years, but no permanently flowing water is found.

Most interesting from the viewpoint of island biogeography is a stand of about 30 White Firs *(Abies concolor)* occupying an area of about 1 ha in a very steep, north-facing canyon about 0.6 km north of New York Peak between 6400 and 7200 ft (Hendrickson and Prigge 1975). Most trees are within 100 m of one another at 6900-7100 ft. The largest tree measured 71 cm DBH and about 17 m in height; only about 10 trees are taller than 7 m (Hendrickson and Prigge 1975). A few small Canyon Live and scrub oaks intermingle with the firs and pinyons, adding a bit of habitat complexity lacking in the oak-less Kingstons or Clark Mountain White Fir stands. However, thickets of Mountain Maple *(Acer glabrum)* and currant *(Ribes cercum, R. velutinum)* found in the Kingstons and Clarks probably equal or surpass the influence of oaks on habitat complexity in the New Yorks.

The only published information we can find concerning the avifauna of the New York Mountains is that of Hollister (1908) who listed 13 widespread species noted at "New York Mountain" in early June 1905. Johnson et al. (1948) conducted thorough bird surveys in the lower 700 ft or so of the pinyon-juniper zone of the Mid Hills and Providence Mountains (actually contiguous with eastern border of the New Yorks). Connection of the New York pinyon-juniper zone with those of the adjacent Mid Hills and Providence Mountains could possibly influence the stability of the avifauna through area-size effects.

The New York Mountain White Fir stand had not been visited by ornithologists prior to our visits.

Kingston Range. The Kingston Range is located about 30 km southeast of Tecopa and about 30 km west of the California-Nevada border in extreme northeastern San Bernardino Co., California. The highest point, Kingston Peak (7323 ft = 2232 m), is 37 km northwest of Clark Mountain and 63 km west of Charleston Peak. The general vegetation of the Kingston Range is very similar to that of the New York Mountains except that 1) junipers seem to be less common; 2) oaks are apparently absent; and 3) Joshua Trees *(Yucca brevifolia)*, although common at the lower limits of the pinyon-juniper belt in the New York Mountains, are very scarce at the base of the Kingstons. The absence of Joshua Trees may be partially offset by the presence of large yucca-like *Nolina wolfii*, which extend to considerable elevations on drier slopes. Pinyon-juniper habitat, primarily restricted to north-facing slopes and the uppermost portions of drier slopes, is less extensive in the Kingston Range than in the New York Mountains. In addition, fires have eliminated much of the pinyon-juniper habitat on the NE slopes of the range. The White Fir stand in the Kingstons is much larger than that in the New Yorks. Approximately 150 trees, with the largest 86 cm DBH and the tallest about 20 m, are scattered over 12 ha in two steep canyons between 6400 and 7200 ft, just north of Kingston Peak; most trees are found between 6800 and 7100 ft (Hendrickson and Prigge 1975).

The avifauna of the Kingston Range is virtually unknown. Alden H. Miller (field notes in the Museum of Vertebrate Zoology) visited the lower edge of

the pinyon-juniper zone on 17 June 1939, but recorded few birds; the Kingston Range is included as a locality for a few species in Grinnell and Miller (1944) as a result of this visit. We can find no other data from the Kingstons.

Both the Kingstons and the New Yorks are surrounded by Mojave Desert characterized by Joshua Tree woodland from 4000 to 5500 ft and Creosote Bush *(Larrea tridentata)*-Mohave Yucca *(Yucca schidigera)* scrub below 4000 ft, habitats generally unsuitable to bird species characteristic of the pinyon-juniper zone.

BIRD SURVEYS

We spent approximately 280 party-hours (observation time only; more than one observer was considered to be a "party" unless separated sufficiently to be encountering different birds) in the New York Mountains between 1970 and 1979 (with most effort concentrated in 1976-1977), primarily from March to July but with visits in every month of the year. Most time was spent in the lower elevation canyon areas (Live Oak, Keystone, Caruthers, Fourth of July and Sagamore canyons) along the southern and eastern perimeters. We have not visited the sparsely vegetated northern portion of the range, nearly inaccessible by road and appearing very uninteresting from a distance. It is unlikely that we have overlooked any breeding bird species in the pinyon-juniper zone, although our knowledge of the bird community above 6800 ft is scanty. We were able to census the White Fir stand only three times: Remsen, with Andrew Sanders, spent 2 hours there on 28 April 1976; Remsen and Cardiff were there for 4 hours on 20 June 1977; and Cardiff, Cheryl Cardiff and Lawrence LaPré made an overnight visit on 4-5 July 1979. Also, Don Roberson (pers. comm.) and Donna Dittmann spent 3 hours in the White Firs on 29 June 1977.

In contrast to the New Yorks, our knowledge of the Kingston Range is based on only 29 party-hours on 21-22 June 1977. Cardiff camped in the White Fir stand and spent 6 hours censusing it. Remsen and Linda Hale concentrated on the areas of pure pinyon above 6600 ft. While we feel confident we did not miss any common species, we certainly could have missed some rare species. Thus our surveys of the Kingstons can be used mainly to establish *presence* of species, not absence, although we will argue below that some species are absent from the Kingstons.

BREEDING AVIFAUNAS

Below we present lightly annotated lists of the breeding birds of both the pinyon-juniper zone and the White Fir stands of each mountain range. We present our evidence for breeding using the format proposed by Binford (1973), using the following abbreviations for Binford's categories: NY = nest with young, NE = nest with eggs, NC = nest under construction, NU = active nest, stage unknown, PJ = prejuvenal, C = courtship observed, T = territoriality observed, and RHD = combination of a) range within known breeding distribution, b) observed in appropriate breeding habitat, c) dates of observation outside migration period. For all species (except Turkey Vulture, Black-throated Gray Warbler and Rufous-crowned Sparrow) in the pinyon-

juniper zone for which we give "RHD" as our evidence for breeding, we have direct evidence (nest or "prejuvenals") of breeding from adjacent mountain ranges (Mid Hills, Providence or Granite mountains). For the pinyon-juniper zone, we use the following terminology to indicate relative abundance: common (10+ per ½ day); fairly common (3-10 per ½ day); uncommon (1-2 per ½ day); rare (average less than 1 per ½ day). For the White Fir stands, we give an estimate of the number of breeding pairs. An asterisk (*) indicates that the species breeds in non-coniferous habitat below the pinyon-juniper zone; thus for these species, coniferous habitat does not function as an island.

I. NEW YORK MOUNTAINS—Pinyon-Juniper Zone (38 species)

*Turkey Vulture *(Cathartes aura)*. (RHD). Uncommon to rare; all elevations.

Cooper's Hawk *(Accipiter cooperii)*. (NE). Rare; found primarily around Canyon Live Oak groves, especially in Caruthers Canyon, where an abandoned nest with one egg was found on 13 June 1979.

*Red-tailed Hawk *(Buteo jamaicensis)*. (RHD). Uncommon; all elevations.

*Golden Eagle *(Aquila chrysaetos)*. (C, RHD). Rare; all elevations.

*Gambel's Quail *(Lophortyx gambelii)*. (PJ). Fairly common; below 5800 ft.

*Mourning Dove *(Zenaida macroura)*. (C, RHD). Fluctuating annually from rare to fairly common; mainly below 5800 ft; recorded as high as 6400 ft.

*Greater Roadrunner *(Geococcyx californianus)*. (RHD). Uncommon; below 5800 ft.

*Common Screech-Owl *(Otus asio)*. (RHD). Rare; noted as high as 5880 ft.

*Great Horned Owl *(Bubo virginianus)*. (T, RHD). Rare; noted as high as 5760 ft.

Long-eared Owl *(Asio otus)*. (NY). Rare; recorded between 5680 and 5840 ft; nests found in Keystone and Caruthers canyons.

*Common Poorwill *(Phalaenoptilus nuttallii)*. (T, RHD). Uncommon; noted as high as 6200 ft.

White-throated Swift *(Aeronautes saxatalis)*. (C, RHD). Fairly common. Forages at all elevations, but nesting apparently restricted to cliffs at higher altitudes.

*Costa's Hummingbird *(Calypte costae)*. (T, RHD). Uncommon; below 6000 ft; birds recorded as high as 6400 ft probably post-breeding, upslope wanderers.

*Ladder-backed Woodpecker *(Picoides scalaris.)* (RHD). Uncommon; below 6200 ft. Not restricted to desert vegetation; occurs in pinyon-juniper above upper limits of Joshua Trees.

*Cassin's Kingbird *(Tyrannus vociferans)*. (NY). Uncommon; below 5700 ft.

*Ash-throated Flycatcher *(Myiarchus cinerascens.)*. (PJ). Uncommon; below 5900 ft.

Violet-green Swallow *(Tachycineta thalassina)*. (RHD). Fairly common. Forages at all elevations, but nesting restricted to cliffs at higher altitudes.

Scrub Jay *(Aphelocoma coerulescens)*. (PJ). Fairly common; below 6000 ft; rare above 6000 ft.

*Common Raven *(Corvus corax)*. (C, RHD). Uncommon; all elevations. Apparently forages mainly in desert areas below pinyon zone.

Pinyon Jay *(Gymnorhinus cyanocephalus)*. (PJ). Fairly common to common below 6400 ft; rare at higher elevations.

Mountain Chickadee *(Parus gambeli)*. (PJ). Uncommon; mainly from New York Peak east to Keystone and Live Oak canyons and south to Caruthers Canyon; all elevations.

Plain Titmouse *(Parus inornatus)*. (T, RHD). Fairly common below 6000 ft; rare to 6400 ft.

Bushtit *(Psaltriparus minimus)*. (PJ). Common below 6000 ft; rare at higher elevations.

Bewick's Wren *(Thryomanes bewickii)*. (T, C, RHD). Common; all elevations.

*Canyon Wren *(Catherpes mexicanus)*. (T, RHD). Uncommon; all elevations.
*Rock Wren *(Salpinctes obsoletus)*. (T, RHD). Uncommon; all elevations.
*Crissal Thrasher *(Toxostoma dorsale)*. (PJ). Uncommon; below 5900 ft, primarily in Caruthers Canyon.
*Blue-gray Gnatcatcher *(Polioptila caerulea)*. (NC). Common; all elevations.
Gray Vireo *(Vireo vicinior)*. (T, RHD). Uncommon; below 6100 ft.
Black-throated Gray Warbler *(Dendroica nigrescens)*. (T, RHD). Uncommon; all elevations.
*Scott's Oriole *(Icterus parisorum)*. (NU). Fairly common below 5600 ft; rare to 6200 ft.
*Brown-headed Cowbird *(Molothrus ater)*. (RHD). Rare; below 6200 ft.
Black-headed Grosbeak *(Pheucticus melanocephalus)*. (PJ). Uncommon; all elevations, but primarily oak thickets and brushy gullies.
*House Finch *(Carpodacus mexicanus)*. (PJ). Uncommon; all elevations. Most birds seen in pinyon-juniper may be there mainly to drink from springs and may not actually breed within the zone.
Rufous-sided Towhee *(Pipilo erythrophthalmus)*. (PJ). Uncommon; all elevations but local, in brushy areas.
Rufous-crowned Sparrow *(Aimophila ruficeps)*. (T, RHD). Uncommon; below 6400 ft; in Keystone and Live Oak canyons only. See Remsen and Cardiff (1979) for details of this range extension for the race *scottii*.
*Black-throated Sparrow *(Amphispiza bilineata)*. (NY). Fairly common; below 6100 ft, probably much higher on some open, exposed slopes.
Black-chinned Sparrow *(Spizella atrogularis)*. (PJ). Uncommon; below 6800 ft.

The following species may eventually be found nesting in this area:

Anna's Hummingbird *(Calypte anna)*. At least one adult male and two immature males were singing and displaying on territory in oak thickets in Keystone Canyon from at least 26 May to at least 20 June 1977 and a few females were seen in the vicinity. An immature male was on territory in oak thickets in Fourth of July Canyon on 26 May 1977. None was seen in these areas in 1976 or 1978 and this species is not known to breed any great distance east of the Sierra Nevada-Transition Range-Peninsular Range axis in California (Grinnell and Miller 1944) except for a few recent records along the Lower Colorado River (McCaskie 1979a, b; Witzeman 1977). But because this species has greatly expanded its range in the last decade (Zimmerman 1973), with nests discovered as far east as the Davis Mountains of west Texas (Williams 1976), nesting in the oak canyons of the New York Mountains should be watched for. Several birds were present continuously in the nearby Granite Mountains from 24 March to 28 May 1978 (K. Johnson in litt.).
Broad-tailed Hummingbird *(Selasphorus platycercus)*. Recorded from 28 April to 30 May, but no June records. Breeds on nearby Clark Mountain (Johnson et al. 1948, pers. obs.).
Dusky Flycatcher *(Empidonax oberholseri)*. Territorial singing individuals noted at 6800 and 6900 ft on 20 June 1977 within 1 km of the White Fir stand. We strongly suspect nesting at these higher elevations of the pinyon-juniper zone. Johnson (1974) speculates that this species may nest in the pinyon zone of the Grapevine Mountains in Death Valley National Monument.
Western Wood Pewee *(Contopus sordidulus)*. Territorial, singing individuals noted at 6600, 6800 and 7000 ft on 20 June 1977. Although these could have been late migrants or unmated birds, breeding is suspected in light of the nests found in the Kingston Range (see below) and probable nesting on Clark Mountain (N.K. Johnson in litt.).

Mountain Bluebird *(Sialia currucoides)*. Eleven adults and two birds in juvenal plumage noted in Caruthers Canyon at 5700 ft on 21 and 30 July 1976. It is unlikely that these birds were migrants, since this species normally does not migrate until October. It also seems unlikely that birds in spotted juvenal plumage would be migrants. Perhaps local breeding is more likely, especially since pairs have been noted on three occasions in Joshua Tree woodland on Cima Dome (24.5 km west of Caruthers Canyon) in May and June and once in late June in Lanfair Valley (13 km east of Caruthers Canyon), long after migrants have departed (March). The nearest known breeding localities are in the San Bernardino and Panamint mountains (Grinnell and Miller 1944). There are no records for the Sheep or Spring ranges in southern Nevada (Johnson 1965).

Warbling Vireo *(Vireo gilvus)*. Two persistently singing males were found in Keystone Canyon at 5600 and 6600 ft on 20 June 1977. This species has been noted in the breeding season in the Kingston Range (see below) and is definitely known to nest on Clark Mountain (pers. obs.). Although breeding can take place in pure coniferous habitat (Johnson 1965), the singing individuals in the New York Mountains were associated with pinyon-juniper interspersed with thickets of oak, and the oak component of the habitat may account for the presence of this species.

II. NEW YORK MOUNTAINS—White Fir Grove

A. Species not breeding for certain outside White Fir grove:

Dusky Flycatcher. (NE). A nest with four eggs was found about 1 m above ground in a White Fir sapling on 20 June 1977; one member of the pair incubated while the other sang within the grove. A pair was again present in 1979. This is the southeasternmost known breeding locality for this species in the interior of California. May also breed in the pinyon-juniper zone (see above).

Painted Redstart *(Myioborus pictus)*. (T, HD). One closely associating pair (one bird singing), on 20 June 1977. None were found during 1979. The only nest known from California was found in the Laguna Mountains, San Diego Co. (Unitt 1974).

Hepatic Tanager *(Piranga flava)*. (NY). One very closely associating pair, 20 June 1977, and one singing male, 29 June 1977. A nest with recently hatched young was observed in a pinyon, 4-5 July 1979. This is a breeding range extension; the only other definite breeding records for California are from the San Bernardino Mountains (McCaskie 1972, Johnson and Garrett 1974) and the Kingston Range (see below).

B. Species also breeding in pinyon-juniper zone:

Mountain Chickadee. (T, RHD). One pair.
Bushtit. (RHD). One pair.
Bewick's Wren. (T, RHD). One pair.
*Blue-gray Gnatcatcher. (T, RHD). One pair.
Black-throated Gray Warbler. (T, RHD). One pair.
Black-headed Grosbeak. (T, RHD). One pair.
Rufous-sided Towhee. (T, RHD). One pair.

C. Species not nesting in the grove itself but seen foraging overhead and probably nesting in vicinity:

White-throated Swift. Almost certainly nesting in surrounding cliffs; 5-10 overhead on all visits.

Violet-green Swallow. On all four visits, 6-35 foraged overhead; undoubtedly nests in adjacent cliffs.

D. Species noted in the grove but which should be considered as non-breeding wanderers without direct evidence for breeding:

Cooper's Hawk. One immature, 20 June 1977.
*Red-tailed Hawk. Single adults 28 April 1976 and 20 June 1977, and two apparently paired birds, 5 July 1979.
*Golden Eagle. Two apparently paired birds, 20 June 1977 and 5 July 1979.
Anna's Hummingbird. One female, 20 and 29 June 1977.
Western Wood Pewee. One, 5 July 1979, sang occasionally but did not appear to be strongly territorial.
Scrub Jay. Two, 5 July 1979; probably upslope wanderers.
House Wren *(Troglodytes aedon)*. Two, 5 July 1979. Breeds on nearby Clark Mountain (pers. obs.).
Orange-crowned Warbler *(Vermivora celata)*. One very yellow (probably *V. c. lutescens*) non-singing bird seen on 20 June 1977, and a similar immature-plumaged bird was seen on 5 July 1979. Ned K. Johnson (pers. comm.) has found that the Orange-crowned Warblers on Clark Mountain at this time of year are juvenile *V. c. lutescens*.
Yellow-rumped Warbler *(Dendroica coronata)*. A singing male "Audubon's" type, apparently unmated, was present on 20 June 1977.
Cassin's Finch *(Carpodacus cassinii)*. A solitary male was present on 29 June 1977.
Lesser Goldfinch *(Carduelis psaltria)*. One found on 5 July 1979.

III. KINGSTON RANGE—Pinyon-Juniper Zone (24 species; all observations on 21-22 June 1977)

*Red-tailed Hawk. (RHD). One adult at 6800 ft.
*Great Horned Owl. (T, RHD). One seen at 5800 ft and another heard at 6800 ft.
*Common Poorwill. (T, RHD). Several heard on rocky slopes at lower edges of pinyon-juniper zone.
White-throated Swift. (C, RHD). Fairly common; all elevations. Actual nesting probably takes place in rock cliffs at upper elevations.
*Ash-throated Flycatcher. (RHD). Fairly common; up to 6400 ft.
Western Wood Pewee. (NC). Fairly common; 6080-6720 ft. One bird was building a nest in a pinyon at 6720 ft.
Violet-green Swallow. (C, RHD). Fairly common; all elevations but most common above 6500 ft.
Scrub Jay. (RHD). Uncommon; up to 6400 ft. Seemed much less common than in New York Mountains.
*Common Raven. (RHD). Uncommon; up to 6800 ft.
Plain Titmouse. (RHD). Uncommon; up to 6720 ft. Decidedly less common than in New York Mountains.
Bushtit. (RHD). Common: all elevations.
Bewick's Wren. (T, RHD). Common; all elevations.
*Canyon Wren. (T, RHD). Fairly common; all elevations.
*Rock Wren. (T, RHD). Fairly common; all elevations.
*Blue-gray Gnatcatcher. (T, RHD). Common; all elevations.
Solitary Vireo. (T, RHD). One member of a territorial pair was collected at 6720 ft and another individual was heard singing at 6520 ft. The specimen is very worn but appears to be *V. s. cassinii* (E.A. Cardiff pers. comm.).

Black-throated Gray Warbler. (T, RHD). Fairly common; above 6000 ft.

*Scott's Oriole. (RHD). Fairly common; below 6000 ft, but up to 6800 ft on some sunny, south-facing slopes.

Hepatic Tanager. (D). Fairly common; 6800-6900 ft. The four individuals noted were over 1.5 km from the White Fir stand.

Black-headed Grosbeak. (T, RHD). Fairly common; 6700-6900 ft (true elevational distribution undoubtedly much broader).

*House Finch. (RHD). Fairly common; all elevations.

Rufous-sided Towhee. (T, RHD). Fairly common; up to 6800 ft, especially in *Larrea* thickets.

*Black-throated Sparrow. (T, RHD). Fairly common; up to 6000 ft, and on some sunny, exposed slopes to 6720 ft.

Black-chinned Sparrow. (T, RHD). Fairly common; 6000 to 6800 ft.

Other species noted on our survey are listed below. Many of these may have actually been breeding, but direct evidence is needed to list them with the breeding avifauna:

*Costa's Hummingbird. One female-plumaged bird was at 6580 ft and another at 6660 ft (identified by their high-pitched, Bushtit-like chip notes). These were more likely upslope, post-breeding wanderers rather than breeders, although some may breed along the lower edge of the pinyon-juniper zone, as in the New York Mountains.

Broad-tailed Hummingbird. A female-plumaged bird in a brushy gully may have been nesting. This species nests in similar habitat on Clark Mountain (N.K. Johnson pers. comm.) and a nest was found in the White Firs in the Kingstons (see below).

Hairy Woodpecker *(Picoides villosus)*. One and possibly two birds were seen at 6000 ft. The time of year indicates that this species breeds in the Kingstons, even though none was seen in the White Firs. This species formerly bred in the White Firs on Clark Mountain (Miller 1940) and Cardiff saw a territorial male there on 29 May 1979 (McCaskie 1979a).

Dusky Flycatcher. (T, RHD). Four singing, territorial birds noted at 6580-6800 ft. Very likely breeding, although all were more than 1.5 km from the White Fir grove.

Gray Vireo. One was heard singing by Alden H. Miller at the lower edge of the pinyon-juniper zone on 17 June 1939, at the locality cited as "Horse Spring" (=Horse Thief Spring) by Grinnell and Miller (1944) but was actually some distance from the spring itself (Miller field notes at M.V.Z.). We did not detect any on our survey.

Warbling Vireo. One was singing persistently at 6880 ft and another at 6720 ft.

Orange-crowned Warbler. A very bright (probably *V. c. lutescens*), non-singing bird was seen at 6880 ft (see comments under New York Mountains for this species).

MacGillivray's Warbler *(Oporornis tolmiei)*. A persistently singing male in a brushy gully at 6720 ft may have been breeding. If so, this would be a considerable range extension, since the nearest known breeding localities are in the southern Sierra Nevada and White Mountains of California (Grinnell and Miller 1944) and Quinn Canyon-Grant Range of southern Nevada (Johnson 1973). However, this species has been extending its range and now appears to breed in the San Bernardino and San Gabriel mountains (McCaskie 1978, 1980).

Rose-breasted Grosbeak (*Pheucticus ludovicianus*). One female at about 6000 ft.

Cassin's Finch. One female-plumaged bird at 6000 ft.

Lesser Goldfinch. One flying overhead at 6600 ft.

Chipping Sparrow *(Spizella pusilla)*. Up to four pairs (one bird singing) at 6800 ft.

IV. KINGSTON RANGE—White Fir Grove (all observations on 21-22 June 1977)

A. Species not recorded outside White Fir grove:

Broad-tailed Hummingbird. (NU). A female was sitting on a nest; no males noted. If breeding is confirmed in pinyon-juniper zone (see above), this species would fall in category B below.

Red-breasted Nuthatch *(Sitta canadensis)*. (T, RHD). One or two pairs.

Hermit Thrush *(Catharus guttatus)*. (T, RHD). One pair.

Warbling Vireo. (T, RHD). Two pairs; may breed in pinyon-juniper zone (see above).

Virginia's Warbler *(Vermivora virginiae)*. (T, RHD). One pair.

Dark-eyed Junco *(Junco hyemalis)*. (T, RHD). Three pairs; mainly "Oregon" types, but at least one male appeared to be intermediate between "Oregon" and Gray-headed *(J. caniceps)* types.

Chipping Sparrow. (T, RHD). Four pairs; if found to breed in pinyon-juniper zone (see above), should be transferred to category B.

B. Species also thought to breed in pinyon-juniper zone:

*Common Poorwill. (T, RHD). One heard.

Dusky Flycatcher. (T, RHD). Eight singing.

Violet-green Swallow. (RHD). Ten feeding overhead.

Scrub Jay. (RHD). One pair.

Bushtit. (RHD). About six pairs.

*Blue-gray Gnatcatcher. (NE). About eight pairs.

Solitary Vireo. (T, RHD). Two pairs.

Black-throated Gray Warbler. (T, RHD). About 10 pairs.

Black-headed Grosbeak. (RHD). One pair.

*House Finch. (RHD). Two pairs.

C. Species also seen in the White Fir grove but judged either not to be breeding within the White Firs or to require more positive evidence to be listed as part of the breeding avifauna:

*Red-tailed Hawk. One adult.

*American Kestrel *(Falco sparverius)*. One pair. This is an unusually high elevation record. Our highest record for this species in the New York Mountains is 5600 ft.

Flammulated Screech-Owl *(Otus flammeolus)*. One heard. Miller (1940) took a female with enlarged ova on Clark Mountain and individuals have been heard there several times in recent years (McCaskie 1977b). Huey's (1932) report of a juvenal specimen from pinyon-juniper habitat in the Argus Range further supports the possibility that this species breeds in higher elevation coniferous habitats in the Mojave Desert. Since this species calls only on the breeding grounds (N.K. Johnson in litt.), breeding is strongly suspected, but the possibility that this bird was unmated cannot be ruled out.

*Common Raven. Seven seen overhead.

Ruby-crowned Kinglet *(Regulus calendula)*. One individual.

Yellow-rumped Warbler. One female "Audubon's" type, apparently unmated. An unidentified singing warbler may have been a male of this species.

*Scott's Oriole. Three birds. Almost certainly unslope wanderers.

*Rose-breasted Grosbeak *(Pheucticus ludovicianus)*. One female. This vagrant was exceptionally common in the California deserts in May and June 1977 (McCaskie 1977a).

DISCUSSION

The breeding avifaunas of the pinyon-juniper zone of the New York Mountains and Kingston Range are extremely similar in species composition and relative abundance. This is to be expected from their overall strong vegetational similarities. It is somewhat surprising that the presence of oaks in the New York Mountains did not add species to its breeding avifauna (although see below). The only species entirely "missing" from the Kingston Range pinyon-juniper is Mountain Chickadee. It is unlikely that we overlooked this conspicuous species in the Kingstons. We have no ready explanation for its apparent absence, other than the stochastic factors involved in colonization and extinction in island situations.

Other species known from the New York Mountain pinyon-juniper but not found in the Kingstons are Cooper's Hawk, Gambel's Quail, Mourning Dove, Greater Roadrunner, Common Screech-Owl, Long-eared Owl, Ladder-backed Woodpecker, Pinyon Jay, Crissal Thrasher and Rufous-crowned Sparrow. Six of these species (Gambel's Quail, Mourning Dove, Common Screech-Owl, Greater Roadrunner, Ladder-backed Woodpecker and Crissal Thrasher) are not found above the lower edge of the pinyon-juniper zone; we spent little time at this lower edge in the Kingstons. Also, all six are found in desert habitats below the pinyon-juniper zone and so are irrelevant to island biogeography. Three species (Cooper's Hawk, Long-eared Owl and Rufous-crowned Sparrow) are rare and local species not expected to be detected in a brief survey. Also, all three are primarily found in oak canyons in the New Yorks and may be species added to these mountains by presence of this additional habitat. This leaves Pinyon Jay as the only species that might be added to the "missing" category with Mountain Chickadee. But this species forms very mobile flocks that may have been in other parts of the Kingstons during our survey; further visits would be necessary to add this species to the "missing" list. Solitary Vireo is the only species breeding in the Kingston Range pinyon-juniper zone that we feel definitely does not nest in the New York Mountains. We have not listed Dusky Flycatcher, Western Wood Pewee and Hepatic Tanager in the main list for the New York Mountains, although they likely will be found to breed there. Broad-tailed Hummingbird, Hairy Woodpecker, MacGillivray's Warbler and Chipping Sparrow are other species absent from the New Yorks that may eventually be shown to breed in the pinyon-juniper zone of the Kingstons. As in the case of Mountain Chickadee, we can offer no convincing explanation for the absence of Solitary Vireo in the New York Mountains (see below).

The composition of the breeding avifauna of the White Fir stands differs greatly between the two mountain ranges, primarily due to the huge differences in sizes of the stands. The much larger Kingston Range stand contains every species present in the New York Mountains stand except two: Mountain Chickadee and Painted Redstart (and this latter species was not present in the New Yorks in 1979). The presence of shaded, rocky cliffs immediately adjacent to the New York grove, plus canyon oaks, makes this stand superficially resemble typical Arizona breeding habitat of Painted Redstart much more so than the Kingston stand.

The following species found in the Kingston Range White Fir stand are not known from the New York Mountains White Fir stand: Common Poorwill, Broad-tailed Hummingbird, Red-breasted Nuthatch, Hermit Thrush, Solitary Vireo, Warbling Vireo, Virginia's Warbler, Dark-eyed Junco and Chipping Sparrow. The "absence" of Common Poorwill from the New York stand is probably due to lack of nocturnal observations there during times of the year when this species is very vocal. The remaining species are all characteristic of higher elevations of Great Basin ranges or the Sierra Nevada. Their absence from the New Yorks is probably due to the very small extent of suitable habitat there. However, Solitary Vireo, Warbling Vireo and Chipping Sparrow apparently do not require White Firs *per se* since they are found elsewhere in the Kingstons in pure pinyon above 6700 ft. Absence of Solitary Vireo and Chipping Sparrow from the New York pinyon-juniper zone may be due to stochastic factors involved in colonization-extinction or subtle differences between the ranges in habitat suitability. Thorough vegetation sampling would certainly help quantify the comparability of the sites.

We compared the avifauna of the pinyon-juniper zone of the New York Mountains and Kingston Range with that of a larger, nearby mountain mass, the Spring Mountains, using the accounts of Johnson (1965) and van Rossem (1936). Only one species breeding in the pinyon-juniper zone of the latter is lacking from the New Yorks and Kingstons: Gray Flycatcher. Yet this species apparently inhabits only the upper elevations of the zone in the Spring Mountains (7600-8000 ft) and so its absence from the California ranges, with maximum elevations 7300-7500 ft, is not surprising. However, Gray Flycatcher is known to breed in pinyon-juniper habitat at 6700-6900 ft in the eastern San Bernardino Mountains (Johnson and Garrett 1974). It is also possible that we may have overlooked this species because it is very difficult to detect when breeding in low densities (N.K. Johnson pers. comm.).

Only three species recorded from the New Yorks or Kingstons are not reported from the Springs: Greater Roadrunner, Cassin's Kingbird and Rufous-crowned Sparrow. Only one of these, Rufous-crowned Sparrow, does not also occur in non-coniferous habitats. Distribution of pinyon-juniper zone birds may be best explained by vicariance (Croziat 1958) rather than island biogeography, since this habitat was apparently more or less contiguous in the relatively recent past (van Devender 1977). The present islands of pinyon-juniper habitat apparently are sufficiently large that no extinctions have occurred or any extinctions have been counterbalanced by successful recolonizations.

We also compared the avifauna of the Kingston White Fir stand to montane habitat below 8000 ft in the Spring Mountains (from Johnson 1965 and van Rossem 1936). Of the 34 species breeding in the Spring Mountains in montane habitats 7500-8000 ft (excluding pinyon-juniper), 21 (61.8%) were breeding or probably breeding in the Kingston White Firs. No clear-cut patterns were discerned as to which types (ecological, zoogeographic or taxonomic) of species were more likely to be found in the Kingstons. For example, the species that in our estimation would be the least likely colonist, Hairy Woodpecker, is a species found in the Kingstons and which has possibly recolonized Clark Mountain recently (see above). Also, one might predict that the species in the Spring Mountains most restricted to Ponderosa

Pine woodland (Western Wood Pewee, Pigmy Nuthatch and Western Bluebird) would be the least likely to occur in the ponderosa-less Kingstons. Yet one of these three species is found in the Kingstons.

Three species found in the Kingston Range White Firs are not part of the breeding avifauna of montane forest at similar elevations in the Spring Mountains: Scott's Oriole, Hepatic Tanager and House Finch. Scott's Oriole and House Finch were probably upslope wanderers to the Kingston White Firs rather than part of the breeding avifauna. Hepatic Tanager may be in the process of range expansion (Johnson and Garrett 1974) and may now be part of the breeding avifauna of the Spring Mountains.

Our total of 38 breeding species in the New York Mountains considerably exceeds totals for pinyon-juniper woodland in the Great Basin, which average 23-24 breeding species per mountain range (Johnson 1978). Although Johnson did not present his list of 27 pinyon-juniper birds, we suppose that most of the differences arise from differences in categorizing the birds themselves. If we eliminate 10 species (Gambel's Quail, Mourning Dove, Greater Roadrunner, Costa's Hummingbird, Ladder-backed Woodpecker, Cassin's Kingbird, Ash-throated Flycatcher, Crissal Thrasher, Scott's Oriole and Black-throated Sparrow) found only in the lower portion of the pinyon-juniper zone and more characteristic of lower elevation desert vegetation, and also eliminate 2 species (Cooper's Hawk and Long-eared Owl) possibly added by presence of oaks, the residual 26 species more closely approximate Johnson's figures for Great Basin pinyon-juniper.

SUMMARY

Composition of the breeding bird avifauna is given for two conifer-clad mountain ranges in the California Mojave Desert, the New York Mountains and Kingston Range, neither of which had been previously explored by ornithologists. Both ranges have small, relict patches of White Firs that contain small populations of montane species not found in the pinyon-juniper habitat that dominates both ranges. Data are presented in such a way that future visitors to these ranges can more readily document species turnover events in these insular avifaunas.

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LITERATURE CITED

Binford, L.C. 1973. A short method for treating avian breeding data in regional accounts. Wilson Bull. 85:244-246.

Brown, J.H. 1971. Mammals on mountaintops: nonequilibrium insular biogeography. Am. Nat. 105:467-478.

Brown, J.H. 1978. The theory of insular biogeography and the distribution of boreal birds and mammals. Great Basin Nat. Mem. 2:209-228.

Croziat, L. 1958. Panbiogeography. Published by the author, Caracas, Venezuela.

Grinnell, J. and A.H. Miller. 1944. The distribution of the birds of California. Pac. Coast Avif. 27.

Hendrickson, J. and B. Prigge. 1975. White Fir in the mountains of the eastern Mojave Desert of California. Madroño 23:164-168.

Hollister, N. 1908. Some birds of the region about Needles, California. Auk 25:455-462.

Huey, L. 1932. Two noteworthy records for California. Auk 49:107.

Johnson, D.H., M.D. Bryant and A.H. Miller. 1948. Vertebrate animals of the Providence Mountains area of California. Univ. California Publ. Zool. 48:221-376.

Johnson, N.K. 1965. The breeding avifaunas of the Sheep and Spring ranges in southern Nevada. Condor 67:93-124.

Johnson, N.K. 1973. The distribution of boreal avifaunas in southeastern Nevada. Occ. Pap. Biol. Soc. Nevada 36:1-14.

Johnson, N.K. 1974. Montane avifaunas of southern Nevada: historical changes in species composition. Condor 76:334-337.

Johnson, N.K. 1975. Controls of number of bird species on montane islands in the Great Basin. Evolution 29:545-567.

Johnson, N.K. 1978. Patterns of avian geography and speciation in the intermountain region. Great Basin Nat. Mem. 2:137-159.

Johnson, N.K. and K.L. Garrett. 1974. Interior bird species expand breeding ranges into southern California. West. Birds 5:45-56.

Lynch, J.F. and N.K. Johnson. 1974. Turnover and equilibria in insular avifaunas, with special reference to the California Channel Islands. Condor 76:370-384.

MacArthur, R.H. and E.O. Wilson. 1967. The theory of island biogeography. Princeton Univ. Press, Princeton, N.J.

McCaskie, G. 1972. The nesting season. Southern Pacific Coast region. Am. Birds 26:907.

McCaskie, G. 1975. The spring migration. Southern Pacific Coast region. Am. Birds 29:909.

McCaskie, G. 1976a. The nesting season. Southern Pacific Coast region. Am. Birds 30:1005.

McCaskie, G. 1976b. The spring migration. Southern Pacific Coast region. Am. Birds 30:892.

McCaskie, G. 1977a. The spring migration. Southern Pacific Coast region. Am. Birds. 31:1049.

McCaskie, G. 1977b. The nesting season. Southern Pacific Coast region. Am. Birds 31:1190.

McCaskie, G. 1978. The nesting season. Southern Pacific Coast region. Am. Birds 32:1210.

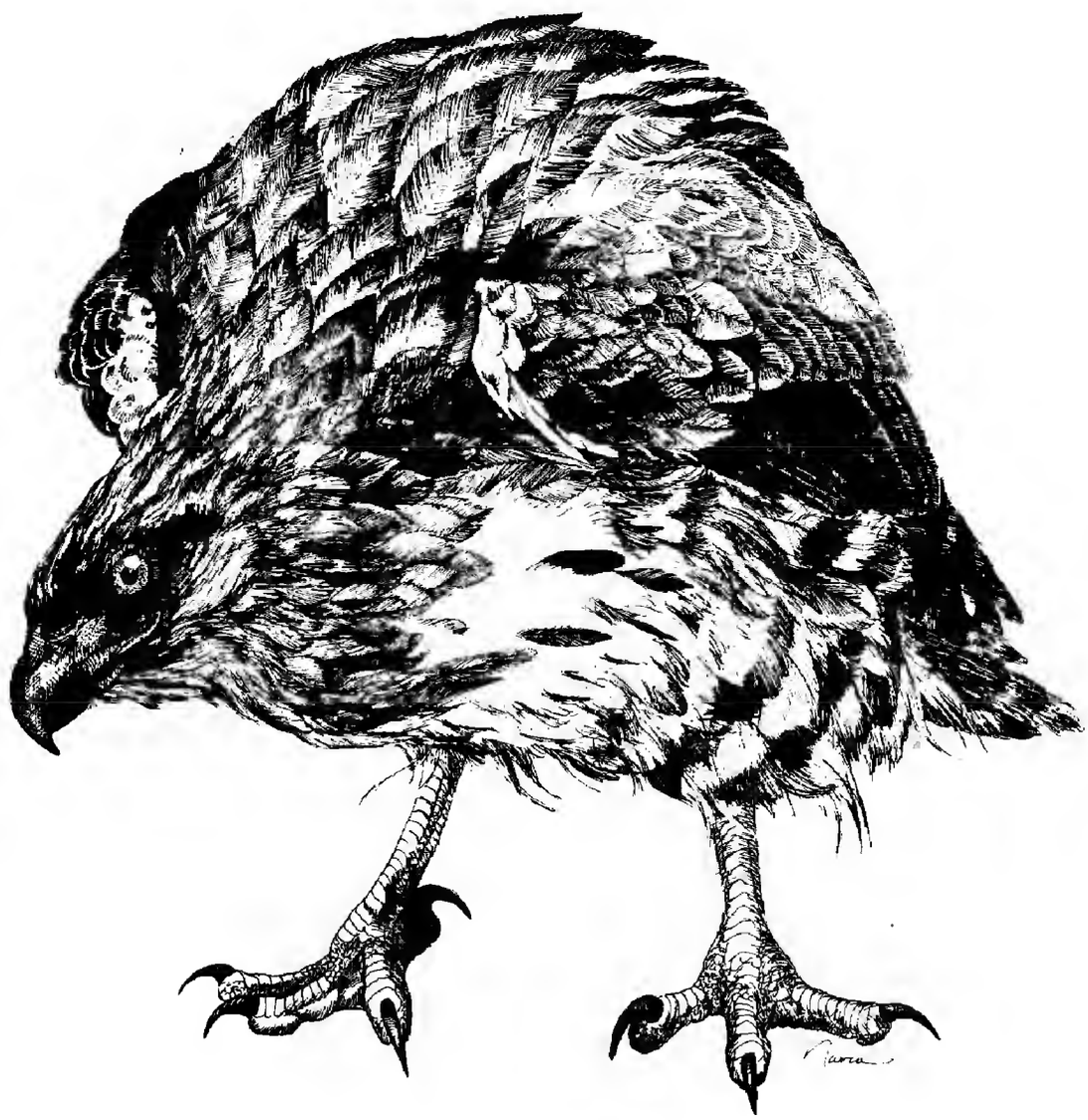
McCaskie, G. 1979a. The spring migration. Southern Pacific Coast region. Am. Birds 33:806.

McCaskie, G. 1979b. The nesting season. Southern Pacific Coast region. Am. Birds 33:897.

McCaskie, G. 1980. The nesting season. Southern Pacific Coast region. Am. Birds 34:929-931.

Miller, A.H. 1940. A transition island in the Mojave Desert. Condor 42:161-163.
Remsen, J.V., Jr. and S.W. Cardiff. 1979. First record of *Aimophila ruficeps scottii* for California. West. Birds 10:45-46.
Unitt, P. 1974. Painted Redstarts attempt to breed in California. West. Birds 5:94-96.
van Devender, T.R. 1977. Holocene woodlands in the southwestern deserts. Science 198:189-192.
van Rossem, A.J. 1936. Birds of the Charleston Mountains, Nevada. Pac. Coast Avif. 24.
Williams, F. 1976. The spring migration. Southern Great Plains region. Am. Birds 30:860.
Witzeman, J., J.P. Hubbard and K. Kaufman. 1977. The spring migration. Southwest region. Am. Birds 31:1033.
Zimmerman, D.A. 1973. Range expansion of Anna's Hummingbird. Am. Birds 27:827-835.

Accepted 22 May 1981



Immature Red-tailed Hawk *Sketch by Narca Moore*

A CENSUS OF THE LIGHT-FOOTED CLAPPER RAIL IN CALIFORNIA

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The Light-footed Clapper Rail *(Rallus longirostris levipes)* is a reclusive resident of southern California's coastal saltmarshes. Historically the subspecies ranged from Santa Barbara, California, to San Quintin Bay, Baja California, Mexico (Bent 1926). Long known to be in jeopardy because of loss of habitat (Wilbur and Tomlinson 1976), the rail is on both federal and state lists of endangered species.

The secretive nature of the Clapper Rail has made it difficult to census. The most frequently used methods have been winter high-tide counts (Wilbur 1974) and the eliciting of vocal responses by playing tape-recorded calls (Tomlinson and Todd 1973). Searching for nests has been done at individual marshes where rail populations were under study (Jorgensen 1975) but has not been used as a regular censusing technique. Each of these methods has limitations. High-tide counts rarely give an accurate estimate of a wintering population, as even during the highest tide there are many places for rails to hide undetected. Nor do rails always respond to taped calls (Wilbur 1974), particularly when there are only a few in the area. Nest searching is extremely time consuming and can be destructive to saltmarsh vegetation.

An estimate of the California population of the Light-footed Clapper Rail was made in 1974 by Wilbur, who placed the population at 500-750 birds in marshes from Carpinteria, Santa Barbara County, to Tijuana Marsh, San Diego County (Wilbur 1974). In 1978 the estimate was reduced to about 300 individuals (Wilbur et al. 1979). Both surveys were based on a combination of the above three methods and were compiled from reports by many different observers.

In 1979 we began a comparative study of the Light-footed Clapper Rail populations at Anaheim Bay and Upper Newport Bay in Orange County (Zembal and Massey in prep.). One aspect of the study was to determine the population at the two marshes, and we began looking for a nondisruptive method like the winter high-tide count to use for censusing the nesting population. Summer high tides unfortunately occur almost invariably after dark and cannot be used for censusing. It has long been known that Clapper Rails "clapper" at dawn and/or dusk in the early spring, with one bird or pair beginning to call and others responding (Bent 1926, Johnson 1973). We listened for several evenings at Anaheim Bay and found that the birds clap-

pered spontaneously, particularly on balmy evenings. We mapped locations of birds as they vocalized and found that results were reproducible on successive evenings. We decided to explore the possibility of using the evening round of clappering as a censusing technique, coupled with an exhaustive nest search at each marsh. The results were sufficiently encouraging for us to attempt a census by vocalizations of the California population in 1980, corroberated by a one-time nest search at most marshes.

METHODS

Censusing by vocalizations

Censusing was begun at a marsh about 2 hours before sunset and continued until vocalizing ceased (usually near total darkness). Tape recordings were used only once, at Goleta Slough; in all other instances we censused by listening to spontaneous vocalizing. In the case of a large marsh, integral portions were censused on successive evenings until the entire marsh was covered, or several observers participated and the marsh was censused in one or two evenings. The size of the area covered each evening by a single observer was small enough (usually 20 ha or less) so that all rails within the area could be heard and the locations of calling birds pinpointed without much movement by the observer. The locations of all different vocalizing (including "clappering," "keking," etc.) rails and birds that were sighted but not heard were plotted on a map. To insure that no bird was counted twice, maps were detailed enough ($1'' = 200'$) to allow for accurate plotting of locations. Mapping notations distinguished between pairs and single birds. (A pair would often clapper in such unison that only with practice could the listener accurately distinguish between the distant calling of a single bird and a pair. Also, some locations where single birds were originally heard would have pairs calling from them before the evening was over.) When two observers were censusing adjacent areas, each kept a record of times at which the different rails vocalized. Comparison of times and locations insured that no bird was counted twice.

During an evening of censusing each observer eventually plotted an appropriate number of points on a map to represent the locations of every different pair and isolated single rail within a defined area. The total represented the minimum number of rails present. A more precise estimate of the actual size of a population was made by considering each point as representing a territory or potential territory, thus representing a pair of rails. If 28 points were plotted on the map representing 19 pairs and 9 single birds, the population was estimated at 56 rails.

Censusing by vocalizations was carried out between 24 March and 17 May 1980.

Nest Searches

Two large marshes in Orange County where major rail populations were known to exist (Anaheim Bay and Upper Newport Bay) were subjected to multiple nest searches. The rail populations at these two bays were under special study and were thus closely watched throughout the nesting season (Zembal and Massey in prep.). Nest searching began in Upper Newport Bay on 26 March and in Anaheim Bay on 27 March. Searches were conducted approximately every other week through June. A final search was done in August to insure that no late nests were missed. Tijuana Marsh, the third site of a known large population of rails, was searched on 20 April; subsequent searches in May and June were done by Paul Jorgensen.

One-time nest searches were conducted during periods of low tide at other marshes in late May and early June. They were timed for the period when initial nesting was complete and complexes of incubation and brood nests were in evidence. All areas of a marsh where nests would be secure from high tides were searched. Two to four people usually participated. Nests were marked on maps in the same way that vocalizing pairs were recorded.

RESULTS

Fifteen southern California saltmarshes were censused during the period from 26 March to 13 June 1980 (Figure 1). Censusing by vocalizations resulted in an estimate of 203 pairs of nesting Light-footed Clapper Rails (Table 1). Nest searches were conducted at 13 of the marshes, and the number of nesting pairs corresponded very closely with the number identified by vocalizations (Table 1).

The 1980 population was concentrated in five coastal saltmarshes, with 93% of the nesting pairs at Carpinteria Marsh, Anaheim Bay, Upper Newport Bay, Kendall-Frost Reserve and Tijuana Marsh. No other marsh had more than four pairs.

The findings at each marsh, plus a brief description of the habitat, are given below. Unless otherwise noted, marsh sizes are from reports in the *Coastal Wetland Series* published by the California Department of Fish and Game.

Goleta Slough. The slough contains approximately 146 ha of saltmarsh vegetation, almost all of which is upper marsh with dominant Pickleweed *(Salicornia virginica)*. There are about 3 km of leveed channels with tidal action via an ocean entrance. Several pockets of freshwater marsh (2-5 ha each) exist along the north and west sides of the slough. Lower marsh is very poorly developed at best and we found no California Cordgrass *(Spartinia foliosa)*. No sightings of Clapper Rails have been reported since June 1974 when a family of two adults and three downy chicks was seen in the freshwater marsh west of Los Carneros Road (Brad Schram pers. obs.).

Census: We visited the slough on 17 May. A nest search along the creek edges failed to uncover any evidence of nesting. No rails were heard at dusk. (Goleta was the only marsh where we tried to elicit a response to taped calls.) There appeared to be suitable nesting habitat along the creek edges; the limiting factors may be poor food supply and easy access by predators. The possibility that a few pairs may nest at Goleta has not been ruled out; a very large effort would be necessary to detect a very small population there.

Table I. Census of the Light-footed Clapper Rail population in California, 26 March - 13 June 1980.

LOCATION	CENSUS BY VOCALIZATIONS (pairs)	CENSUS BY NEST SEARCHING (pairs)
Santa Barbara Co.		
Goleta Slough	0	0
Carpinteria Marsh	16	13
Orange Co.		
Anaheim Bay	30	29
Bolsa Chica	0	0
Upper Newport Bay (entire bay)	98	-[1]
Upper Newport Bay (3 islands[2])	34	35
San Diego Co.		
Santa Margarita Lagoon	0	0
Agua Hedionda Lagoon	1	-[3]
Kendall-Frost Reserve	18	14
Paradise Creek	1	-[3]
Sweetwater Marsh	4	4
E St. Marsh	3	4
F St. Marsh	0	0
Otay River mouth	3	1
South Bay Marine Reserve	3	4
Tijuana Estuary (Oneonta Lagoon Section)	26	17[4]
Total	203	

[1]Nest searching in Upper Newport Bay was confined to three islands.

[2]Shellmaker, Middle and Upper islands. Total for these three islands is included in total for entire bay.

[3]No nest search.

[4]Nest searching at Tijuana Estuary done by Paul Jorgensen.

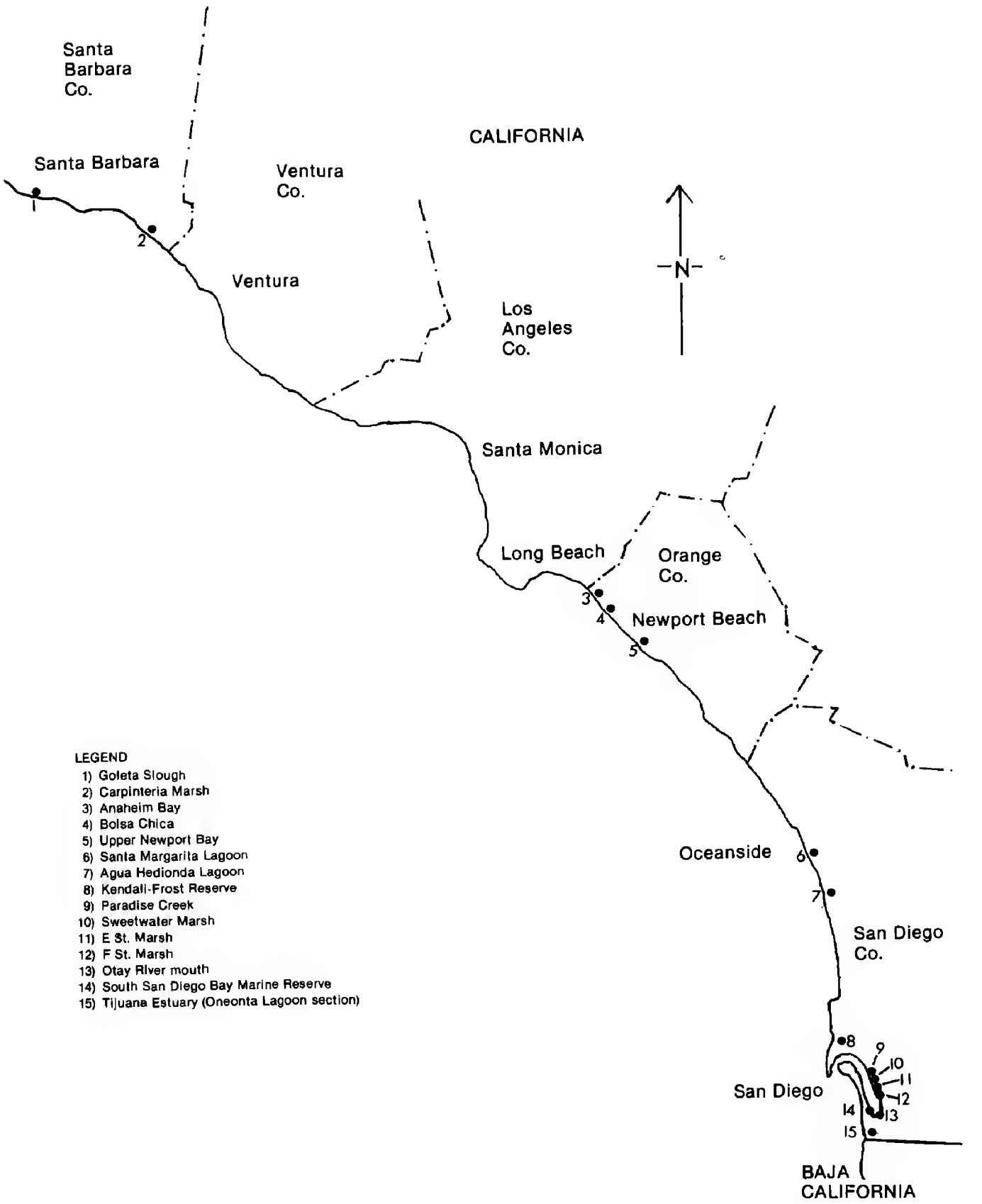

Figure 1. Locations of Light-footed Clapper Rails nesting in California in 1980.

Carpinteria Marsh. The slough has approximately 53 ha of saltmarsh vegetation, dominated by *Salicornia*. There is no *Spartina*. Freshwater marsh vegetation (1.3 ha) borders the east side, mostly *Scirpus* sp. and *Typha* sp. There are 8-9 ha of sand and mudflat and a good tidal prism via an ocean entrance. Previous to 1980 the rail population at Carpinteria was estimated at 10 birds (Wilbur et al. 1979).

Census: On 16 April a vocalization census at dusk documented 16 pairs of Clapper Rails. On 18 May 13 nests were found, most of them along the edges of the main channel. None were found in freshwater marsh vegetation nor on the west side of the slough in what appeared to be good nesting habitat except for accessibility to land predators.

Anaheim Bay. Saltmarsh vegetation covers 226 ha of Seal Beach National Wildlife Refuge in Anaheim Bay. All littoral zones are represented and *Spartina* grows densely in several parts of the bay. Freshwater marsh vegetation is almost nonexistent. There is a full tidal prism and 24 ha of mudflats are exposed at low tide.

The Clapper Rail population has fluctuated over the past 30 years, but in 1979 was estimated at 60 birds (minimum) based on several years of winter high-tide counts (Wilbur et al. 1979).

Census: A vocalization census was completed in six evenings — 1, 3, 5, 6, 10 and 13 April; 30 pairs of Clapper rails were counted. Nest searches were done regularly from 26 March to 5 July, with a late-season check on 4, 5 and 8 August. Evidence of 29 nesting pairs was gathered throughout the season. Details of nest locations, renesting, etc. are reported elsewhere (Zembal and Massey in prep.).

Bolsa Chica. The 121 ha ecological reserve (Schulenberg 1979) in Huntington Beach has little habitat suitable for nesting Clapper Rails. Tidal flow is restricted and water is ponded in a large body behind culverts. *Spartina* grows only marginally and *Salicornia* is low-growing. All saltmarsh vegetation is accessible to land predators.

A Clapper Rail was seen at the north end of the reserve in freshwater marsh vegetation *(Juncus acutus)* several times during winter, 1980 (K. Novick pers. comm.), the first sighting in several years.

Census: No rails were heard calling on 5 May. A nest search of the most likely looking habitat on 1 June failed to reveal evidence of nesting.

Upper Newport Bay. Approximately 100 ha of the bay are covered by saltmarsh vegetation (1971 Orange County survey map). All littoral zones are represented and there are large stands of dense, tall *Spartina*. Tidal flow is unrestricted. At low tides, extensive mudflats are exposed. Freshwater marsh vegetation grows abundantly around the periphery of the bay.

The Clapper Rail population has increased significantly since 1972 when the maximum number seen during a series of winter high-tide counts was 27 (Sexton 1972). In November 1979, 99 rails were counted during a high tide (Massey and Zembal 1980).

Census: Because of the large amount of nesting habitat in the bay, nest searches were confined to three islands — Shellmaker, Middle and Upper. The vocalization census was done for the entire bay, and the results on the three islands were extrapolated and compared with the nest searches. A detailed account of the breeding biology of the Clapper Rails in the bay is reported elsewhere (Zembal and Massey in prep.).

Censusing by vocalizations was completed in eight evenings in early spring — 24 and 26 March; 4, 8, 9, 10, 11 and 15 April. We estimated the total population at 98 pairs; of this total, 34 pairs were counted on the three islands.

Nest searches on the three islands were made regularly from 26 March to 6 July; a late-season check was done on 23 August. The nesting population on the three islands was estimated at 35 pairs.

Santa Margarita Lagoon. The 40 ha saltmarsh (Mudie 1970) is dominated by *Salicornia*. Tidal influence is usually by seepage under the barrier beach; the ocean entrance is rarely open. There have been no reports of Clapper Rails at Santa Margarita in recent years.

Census: No rails were heard on 28 March in the marsh west of Interstate 5. A nest search in the same area on 13 June uncovered no evidence of nesting activity. The marsh east of I-5 was not searched and might possibly harbor a few pairs.

Agua Hedionda Lagoon. A small *Salicornia* marsh covers 6.4 ha at the east end of the lagoon. It grades into brackish water habitat where *Typha* sp., *Juncus* sp. and *Scirpus* sp. grow on about 2 ha. A Clapper Rail was heard in the freshwater marsh vegetation in the spring of 1976 (Massey pers. obs.) and in subsequent years (E. Copper pers. comm.)

Census: No Clapper Rails were heard on the evening of 28 March, but one was sighted in the freshwater marsh vegetation on 29 March. No nest was found during a cursory search of the vegetation on 29 March, but the date was early for nesting.

Kendall-Frost Reserve. The 8.4 ha saltmarsh at the north end of Mission Bay has unrestricted tidal influence and all littoral zones. *Salicornia* is abundant and vigorous, and there are good stands of tall, dense *Spartina*. Small patches of freshwater marsh vegetation occur at the north end of the marsh. This last remaining saltmarsh in Mission Bay hosts the only known population of Clapper Rails in the bay. In 1977 Jorgensen saw 12 on a winter high-tide count (Wilbur et al. 1979).

Census: On 30 March, 18 pairs were heard vocalizing at dusk, and the birds were spaced throughout the marsh. On 25 May we found evidence of 14 nesting pairs. Nests were on high ground in *Salicornia*, in freshwater marsh vegetation and in *Spartina*. Many nests in low marsh were placed in tumbleweeds (*Salsola kali, Amaranthus* sp. or *Chenopodium* sp.), but there were also classically built nests in *Spartina*.

Paradise Creek. At the creek mouth, 20 ha of saltmarsh comprise one parcel of the Sweetwater Marsh complex on the east side of San Diego Bay in Chula Vista. *Salicornia* dominates the marsh vegetation; there is very little *Spartina*. Tidal influence is poor.

Census: On 19 April one pair was heard calling. The marsh was not searched for nests.

Sweetwater Marsh. The marsh has about 52 ha of vegetation, dominated by *Salicornia*. There is a full tidal prism in the large channels, but there are very few small, natural tidal creeks. *Spartina* is very local but dense where found, and freshwater marsh vegetation is not present. The marsh is subject to heavy human trespass. A few Clapper Rails were seen and heard in the marsh throughout the 1970s (Wilbur et al. 1979).

Census: Four pairs were calling on the evenings of 30 March and 19 April. A nest search on 26 May gave evidence of four nesting pairs in the western half (and least accessible portion) of the marsh.

E Street Marsh. Part of the Sweetwater Marsh complex, this 12 ha saltmarsh near the west end of E Street in Chula Vista is separated from Sweetwater Marsh by a causeway. *Salicornia* is dominant, with very little *Spartina*. Tidal influence is unrestricted and nourishes a healthy system of small and large creeks. There is no freshwater marsh.

Census: Three pairs were heard on 20 April. A nest search on 26 May gave evidence of four nesting pairs, with nests in *Salicornia* along the channel edges.

F Street Marsh. Between F and G streets, south of and discontinuous with the Sweetwater Marsh complex, this remnant *Salicornia* marsh is the smallest (about 3 ha), and probably the most heavily impacted, of the known Clapper Rail nesting sites. Tide water flows sluggishly through one main channel. All parts of the marsh are easily accessible to people, dogs, cats, etc. Nevertheless Jorgensen (pers. comm.) found an active Clapper Rail nest here in June 1979.

Census: No Clapper Rails were heard on 20 April, and a nest search on 26 May gave no evidence of nesting activity.

Otay River mouth. A narrow margin of *Salicornia* and a few stands of *Spartina* exist along the edges of the Otay River near its mouth at the south end of San Diego Bay. A few Clapper Rails have been seen here regularly in recent years (M. Evans pers. comm., Wilbur 1974).

Census: No rails were heard on 20 April although one was sighted. On 25 May we heard three pairs and found one nest in a patch of *Spartina.*

South San Diego Marine Reserve. A small but healthy remnant saltmarsh on the west side of the south end of San Diego Bay covers about 5.2 ha (G. Wheeler pers. comm.). *Salicornia* is the dominant plant; *Spartina* is present, but sparse and low-growing. Full tidal influence nourishes a network of creeks. A few Clapper Rails have been seen regularly (Wilbur 1974).

Census: Three pairs were heard on 14 and 19 April. We found four nests on 25 May, all in *Salicornia* on high ground separated by creeks from the trails and parking lot along State Highway 75.

Tijuana Marsh. Just north of the Mexican border lies Tijuana Marsh, with 157 ha of saltmarsh and about 40 ha of tidal creeks and mudflats (Jorgensen 1975). An ocean outlet allows a full tidal prism, and all littoral zones are represented. *Spartina* grows in tall, dense stands. The slough has long hosted one of the largest concentrations of Light-footed Clapper Rails in the state although population levels have fluctuated (Wilbur et al. 1979). In 1973-74 Jorgensen studied the rails' habitat preferences in the marsh and found 90% of the nesting pairs in the northern half of the slough (Jorgensen 1975).

Census: We censused the northern half of the marsh on the evening of 29 March and heard 26 pairs. A nest search of the same area on 20 April revealed 8 nesting pairs; subsequent searches by Jorgensen brought the total to 17.

The area south of the ocean entrance was not censused by either method. Fewer than five pairs have been found in the southern section in previous years and there has been no recent increase in rail nesting habitat there (Jorgensen 1980). Time limitations caused us to exclude this area from the census. The 26 pairs heard on 29 March presumably represent at least 90% of the rails in Tijuana Marsh.

Marshes not censused. No rails have been found at Los Penasquitos Lagoon, San Diego Co., for several years (Wilbur et al. 1979) or in the *Salicornia* marshes at the Santa Ana River mouth, Orange Co. (Zembal and Massey pers. obs.). Neither of these sites was censused in 1980 because the time and effort needed to do so were not proportionate to the expected return, but the possibility of a few pairs at either place cannot be ruled out. There may also be a few pairs in freshwater marsh vegetation at the east end of Batiquitos and San Elijo lagoons, San Diego Co. At Mugu Lagoon, Ven-

tura Co., the sighting of a Clapper Rail by Richard Webster in January 1980 was the first since 1971 (Wilbur et al. 1979), and there is hope that the recent restoration of saltmarsh in the western arm of the lagoon will result in development of rail nesting habitat there.

DISCUSSION

The 1980 census revealed a somewhat larger population of Light-footed Clapper Rails than the 300 birds estimated in 1978 (Wilbur et al. 1979). Although there may be a few more than the 203 pairs we documented in 1980, this figure is based on firmer and more direct evidence than previous surveys and we are confident that it reflects the true population with reasonable accuracy.

Censusing by vocalizations correlated very well with censusing by nest searching. Nest searches yielded information on rail biology not obtainable by listening, such as clutch size, location of nests, and hatching success, but were time-consuming and damaging to saltmarsh vegetation. Censusing by vocalizations had no impact on the birds or their habitat. The effective application of the vocalization census in areas with few rails sometimes required several visits. At the mouth of the Otay River, for example, no birds were heard on 19 April but on 25 May three pairs were vocalizing. At marshes with large populations of rails, vocalizing was somewhat weather-dependent. The birds called regularly at dusk on pleasant evenings, but tended to be less vocal when it was cold and windy. With an awareness of these limitations, the method should prove useful for routine surveying of the Clapper Rail population.

An unexpected finding of the 1980 census was the presence of Clapper Rails in marshes where there was no *Spartina*. Although the birds have been known to nest in *Salicornia* on higher ground in the marshes (Bent 1926, De Groot 1927), they have been typically associated with the *Spartina* belts at lower elevations (Jorgensen 1975, Massey and Zembal 1980). In 1980 many nests were placed in *Salicornia* on high ground even in marshes where *Spartina* was available. At five marshes where *Spartina* was virtually absent (Carpinteria Marsh, Paradise Creek, Sweetwater Marsh, E Street Marsh and South Bay Marine Reserve) and where we did not anticipate finding significant populations of nesting rails, the combined nesting population was 27 pairs, or 13% of the total population in the state. The factors responsible for this shift in habitat preference are discussed elsewhere (Zembal and Massey in prep.).

Certain populations of the Light-footed Clapper Rail have apparently fluctuated widely over the past several years. In Upper Newport Bay, the winter population in 1972 was estimated at 32 individuals with 27 the largest number seen on any one count (Sexton 1972); in 1979, 99 rails were seen on a single winter count (Massey and Zembal 1980). Nest searches of the

three islands in the bay in 1977 revealed only 12 active nests (Jurek 1977) whereas 38 nesting pairs were documented by us in 1979 and 35 in 1980. Differences in censusing techniques could not account for this population change; the trend at Upper Newport Bay has apparently been upward during the past decade. One major reason for the increase has been the newly available prime *Spartina* habitat at the north end of the bay (Zembal and Massey in prep.), where about 40% of the rail population of the bay has been found during the past 2 years.

The population at Anaheim Bay has also fluctuated. In 1971 the estimated population was 100-200 birds, but by 1975 very few rails could be located in the bay (Browning and Smith 1976). A nesting season census in 1977 failed to locate a single Clapper Rail nest (Jurek 1977). Annual winter high tide counts were begun in 1975 and 22 rails were observed that year. By 1979 the winter count had risen to 56 and this level was maintained in 1980, indicating a gradual comeback after a population crash in the early 1970s.

Population crashes may have been natural phenomena in the life history of the Clapper Rail, but with the very reduced population now in existence they are cause for alarm. A crash has recently been observed in the population at Tijuana Slough where only 10 nesting pairs were found in 1979 and 17 in 1980, as compared to 25 located there in 1974 (P. Jorgensen pers. comm.). Jorgensen associated the decline, at least in part, with a reduction in vigor of *Spartina* growth in 1979, and damage to marsh vegetation by floods in 1980. Although Clapper Rails are thought to be quite sedentary, the possibility that they may move locally when conditions at their "home" marshes are poor should not be discounted. Regular censusing of the total population and continued research are needed to interpret population changes at individual marshes.

The prime objective of the Light-footed Clapper Rail Recovery Plan (1977) is "To increase the breeding population to at least 400 pairs by preserving and restoring approximately 4000 acres [1600 ha] of wetland habitat in at least 15 marshes . . ." in California. The status of the rail in 1980 is far from that goal, with only about 203 pairs in the state, and 188 (93%) pairs concentrated in 5 marshes covering 1300 acres (520 ha). The concentration of the population in so few marshes makes the rails extremely vulnerable to natural or man-induced calamities at any of the major sites, and emphasizes the importance of protecting *all* of the marshes where rails are now found. It is a matter of some urgency to enhance and restore saltmarsh habitat of suitable quality for this endangered species.

SUMMARY

A survey of the California population of the Light-footed Clapper Rail was conducted in spring 1980. Censusing was done by listening to spontaneous vocalizations of the rails at dusk and plotting locations of calling pairs on

maps. Nest searches of the marshes corroborated the findings of the vocalization census. Fifteen coastal saltmarshes were censused and 203 nesting pairs were found. The birds were concentrated in five marshes — Carpinteria Marsh, Anaheim Bay, Upper Newport Bay, Kendall-Frost Reserve and Tijuana Marsh.

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LITERATURE CITED

Bent, A.C. 1926. Life histories of North American marsh birds. U.S. Natl. Mus. Bull. 135.

Browning, B.M. & K.A. Smith, eds. 1976. The natural resources of Anaheim Bay. Coastal Wetlands Ser. 18. California Dep. Fish and Game, Sacramento.

De Groot, D.S. 1927. The California Clapper Rail, its nesting habits, enemies and habitat. Condor 29:259-270.

Johnson, R.W. 1973. Observations on the ecology and management of the Northern Clapper Rail *(Rallus longirostris crepitans* Gmelin) in Nassau County, New York. Unpublished PhD thesis, Cornell Univ., Ithaca, New York.

Jorgensen, P.D. 1975. Habitat preference of the Light-footed Clapper Rail in Tijuana Marsh, California. Unpubl. MS thesis, San Diego State Univ., San Diego.

Jorgensen, P.D. 1980. A summary of the Clapper Rail breeding season in Tijuana Marsh. Unpubl. rep. to Wild. and Nat. Res. Off., Staff Civil Engineering (code 1843) Naval Air Station, North Island, San Diego, CA.

Jurek, R.M. 1977. Anaheim Bay Light-footed Clapper Rail study. Unpubl. rep. California Dep. Fish and Game, Sacramento.

Light-footed Clapper Rail Recovery Team. 1977. Light-footed Clapper Rail Recovery Plan. U.S. Fish and Wildl. Serv., Portland, OR.

Massey, B.W. & R.L. Zembal. 1980. A comparative study of the Light-footed Clapper Rail *(Rallus longirostris levipes)* populations in Anaheim Bay and Upper Newport Bay, Orange County, California. Rep. to U.S. Fish and Wildl. Serv., Endangered Species Office, Sacramento, CA.

Mudie, P.V. 1970. A survey of the coastal wetland vegetation of north San Diego County. California Dep. Fish and Game Wildl. Manage. Admin. Rep. 70-4.

Schulenburg, R.W. 1979. The ecological reserves of California. California Dep. Fish and Game Wildl. Manage. Info. Bull. No. 1.

Sexton, C.W. 1972. Clapper Rails at Upper Newport Bay. Unpubl. ms., Dep. Population and Environ. Biol., Univ. of California, Irvine.

Tomlinson, R.E. & R.L. Todd. 1973. Distribution of two western Clapper Rail races as determined by responses to taped calls. Condor 75:177-183.

Wilbur, S.R. 1974. The status of the Light-footed Clapper Rail. Am. Birds 28:868-870.

Wilbur, S.R. & R.E. Tomlinson. 1976. The literature of the western Clapper Rails. U.S. Fish and Wildl. Serv. Spec. Sci. Rep. — Wildl. No. 194. Washington, D.C.

Wilbur, S.R., P.D. Jorgensen, B.W. Massey & V.A. Basham. 1979. The Light-footed Clapper Rail: An update. Am. Birds 33:251.

Zembal, R. & B.W. Massey. In prep. A comparative study of two populations of the Light-footed Clapper Rail in California.

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ADDENDUM

Twenty-three southern California marshes were censused during spring 1981 and 173 pairs of Clapper Rails were detected. The total was down approximately 15% from 1980. This reduction was primarily ascribable to population declines at Anaheim Bay (from 30 to 19 pairs) and Upper Newport Bay (from 98 to 66 pairs). Clapper Rails were detected at 15 marshes in 1981. The four newly documented populations were observed in San Diego County at F Street Marsh, Chula Vista (one pair), J Street Marsh, Chula Vista (one pair), San Diego River Flood Control Channel (three pairs), and San Elijo Lagoon (five pairs). The San Diego River Flood Control Channel and San Elijo Lagoon marshes are primarily freshwater marshes with dominant *Scirpus* sp. and *Typha* sp. and fringing upper saltmarsh vegetation. At the remaining nine marshes where Clapper Rails were detected in both 1980 and 1981, the population estimates were similar for both years, with a slight increase to 31 pairs in 1981 at Tijuana Estuary.

An examination of the status of the Light-footed Clapper Rail in Baja California, Mexico, was begun during spring 1981. We censused no more than one-fourth of the suitable habitat at El Estero, Ensenada, and heard 68 pairs of Clapper Rails, and less than one-fifth of the saltmarsh at Bahia de San Quintin and heard 107 pairs. Projection of these partial counts yields a rough minimum estimate of 800 pairs of Clapper Rails residing in the two saltmarshes.

Accepted 3 September 1981

PRESIDENT'S MESSAGE

Greetings,

Our joint meeting with Colorado Field Ornithologists in Estes Park 26-28 June 1981 was a great success thanks to Jeanne Conry and Bruce Webb who organized the event. More than 100 participants from 13 states were there! The papers presented were excellent. They included:

Distribution and Status of the Boreal Owl in Western North America - Ronald Ryder and David Palmer

South Platte Vertebrate Community - Walter Graul

Reintroduction of Peregrine Falcons - Steve Sherrod

Blue Grouse Investigations in Colorado - Richard Hoffman

Patterns of Bird Distribution and Species Richness in Colorado - Douglas Inkley

Flight Identification of North American Accipiters and Common Buteos - William Clark

Identification of Longspurs - Timothy Manolis

An Introduction to the Pawnee National Grassland - Prairie Images and the Function of Song Flight in Lark Buntings - William Ervin — This fantastic evening presentation acquainted us with many moods of the prairie and the beautiful state bird of Colorado.

The field trips were outstanding, with birds and wildflowers seemingly waiting for us. White-tailed Ptarmigan (thanks to Clait Braun and Ken Giesen for locating the birds and providing an on-the-spot short course on ptarmigan biology), Brown-capped Rosy Finch, Northern Three-toed Woodpecker, Pika and other mountain dwellers were seen in Rocky Mountain National Park. On the Pawnee Grassland Ron Ryder, Bill Ervin and Bob Andrews showed us breeding plumaged Chestnut-collared and McCown's longspurs, nesting Ferruginous Hawks, Hognose Snake and many other species to be expected in this beautiful open prairie country. The post convention trip to eastern Colorado produced surprises and special treats such as the third Colorado record of the Neotropic (Olivaceous) Cormorant, two Yellow-crowned Night Herons, nesting Black-billed Cuckoos, young Upland Sandpipers tumbling through the grasses, a Badger undulating across a field, and fantastic lightning and firefly displays. I am sorry more of you could not have shared these experiences.

Your officers for the next year are Terry Wahl (President), Laurie Binford (Vice-President), Phyllis Laymon (Recording Secretary), Garth Alton (Treasurer), and Elizabeth Copper (Membership Secretary).

How about San Diego in the fall of 1982? Plan on it. Pelagics, vagrants and the Salton Sea will be waiting for you. More details will be coming soon on this next meeting of WFO. — *John Luther*

NOTES

SECOND DOCUMENTED RECORD OF THE BLACK PHOEBE IN CANADA

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At about 1300 on 26 April 1980 Brian Kautesk found a Black Phoebe (*Sayornis nigricans*) in Stanley Park, Vancouver, British Columbia. The bird was flycatching along the shore of Lost Lagoon, a small freshwater lake in the park, where it remained until the evening of 27 April. It occupied a small island covered with Red Alder (*Alnus rubra*), Red Elderberry (*Sambucus racemosa* var. *arborescens*), and other small trees and shrubs, some of which were dead. It usually perched low, not more than 3-4 m above the water.

At least 16 competent observers, including Gerry and Wendy Ansell, Audrey Banton, Dan Bastaja, Norm Chesterfield, Mark Daly, Al and Jude Grass, John and Teresa Ireland, Doug Kragh, Allen Poynter and the four of us, saw the Black Phoebe. Richard Cannings, Al Grass and Robin Weber obtained recognizable photographs (see Figure 1), which have been deposited in the Photoduplicate File at the British Columbia Provincial Museum, Victoria (BCPM photorecord 658). In addition, Wayne Weber and Brian Kautesk took detailed field notes, also on file at the Provincial Museum.

Figure 1. Black Phoebe at Lost Lagoon in Stanley Park, Vancouver, British Columbia, 26 April 1980.

Photos by Robin R. Weber (left), Richard J. Cannings (right)

This constitutes only the second documented record of the Black Phoebe in Canada. The first was a bird collected by R.A. Cumming at Vancouver on 11 November 1936 (Cowan 1939, Munro and Cowan 1947; British Columbia Provincial Museum specimen 6914). However, another reported sighting, not previously published, deserves mention here. On 28 May 1978 F. Lewis Jones and Doreen Jones reported seeing a Black Phoebe on the University of British Columbia campus in Vancouver. In a letter to David Mark, written 2 days after the sighting, Mr. Jones stated: "The black head and breast were clearly discernible, as was the white belly and the tail wagging. It was singing while we watched it and its song conformed with the song of a Black Phoebe that I have on a recording of bird songs." Mr. and Mrs. Jones had seen Black Phoebes previously in California. Although this record must be considered unsubstantiated, as the bird was not photographed and no field notes were made at the time of observation, it seems highly probable that the identification was correct.

The Black Phoebe normally breeds from northern California and southwestern Utah south to northern Argentina (Bent 1942, Godfrey 1966). Although Gabrielson and Jewett (1940) list it as hypothetical in Oregon, it has nested regularly in extreme southwestern Oregon since at least 1958 (Boggs and Boggs 1961, Ramsey 1978), with occasional records north to at least Eugene. In Washington, the first well-documented record was one seen on 27 February 1980 at Moclips Beach, Grays Harbor County (Mattocks and Hunn 1980). Black Phoebes are largely nonmigratory, and occurrences far north of the breeding range are quite rare.

The 1980 Black Phoebe at Vancouver appeared during the height of spring migration, suggesting that it may have been an individual which had unusually strong migratory tendencies and which "overshot" the species' normal breeding range. The phenomenon of "overshooting" has been documented for many bird species when periods of warm weather and southerly winds occur during the spring migration (for examples, see Gauthreaux 1973). Temperatures at the Vancouver International Airport averaged 4°F above normal from 23 to 26 April, with light southeasterly winds on the 24th, which could have provided favorable conditions for the phoebe to migrate. In any event, the Black Phoebe does not often occur as a long-distance vagrant, and it seems unlikely to occur again in British Columbia in the near future.

LITERATURE CITED

Bent, A.C. 1942. Life histories of North American flycatchers, larks, swallows, and their allies. U.S. Natl. Mus. Bull. 179.

Boggs, B. & E. Boggs. 1961. Fall migration: Northern Pacific Coast region. Audubon Field Notes 15:68-70.

Cowan, I. McT. 1939. Black Phoebe in British Columbia. Condor 41:123.

Gabrielson, I.N. & S.G. Jewett. 1940. Birds of Oregon. Oregon State Coll., Corvallis.

Gauthreaux, S.A., Jr. 1973. The changing seasons. Am. Birds 27:743-748.

Godfrey, W.E. 1966. The birds of Canada. Natl. Mus. Canada Bull. 203.

Mattocks, P.W., Jr. & E.S. Hunn. 1980. The winter season: Northern Pacific Coast region. Am. Birds 34:299-302.

Munro, J.A. & I. McT. Cowan. 1947. A review of the bird fauna of British Columbia. British Columbia Prov. Mus. Spec. Publ. 2.

Ramsey, F.L. 1978. Birding Oregon. Audubon Soc. of Corvallis, Corvallis, Oregon.

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AN ALBINISTIC BLACK-NECKED STILT: A SECOND RECORD

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Albinism has been recorded infrequently for the two North American members of the family Recurvirostridae. Gross (Bird-Banding 36:67-71, 1965) listed only one record of albinism for the Black-necked Stilt (*Himantopus mexicanus*) and one record for the American Avocet (*Recurvirostra americana*). To my knowledge no further reports of albinistic Black-necked Stilts have been published.

On 17 September 1977 I saw an albinistic Black-necked Stilt foraging in a small pond at Buena Vista Lagoon, San Diego County, California. The bird was with six to eight normally pigmented stilts. A description of the bird follows: plumage all white; legs light pink, lighter than normal; bill light yellow. Eye color was not seen.

During 5 minutes of observation the albinistic bird appeared to behave similarly to the other stilts, and I did not see any unusual behavior on the part of the normally pigmented stilts toward the albinistic bird. When the group of stilts flew away, the albinistic bird accompanied them. Presumably the same albinistic stilt was seen by two other observers at the same location on 7 September 1977.

Janice K. Victoria of the San Diego Natural History Museum critically reviewed this note; her comments are appreciated.

Accepted 6 October 1980

IDENTIFICATION QUIZ

The shape of the bill and pattern of upperpart streaking identify this rather nondescript bird as some kind of sparrow or longspur. The Snow Bunting (*Plectrophenax nivalis*), the short-tailed, grassland sparrows (*Passerculus*,

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Cover photo by Ray Ekstrom: Spotted Owl (*Strix occidentalis*), 24 August 1980, Grouse Creek near Callahan, Siskiyou County, California, Nikon F, 200 mm lens with flash, f/4, K-64 film.

Manuscripts should be sent to Alan M. Craig, 3532 Winston Way, Carmichael, CA 95608. For matters of style consult *Suggestions to Contributors to Western Birds* (6 pp. mimeo available at no cost from the Editor) and *Council of Biology Editors Style Manual* 4th edition, 1978 (available from the American Institute of Biological Sciences, 1401 Wilson Boulevard, Arlington, VA 22209 for $12.00).

Papers are desired that are based upon field studies of birds, that are both understandable and useful to amateurs, and that make a significant contribution to scientific literature. Appropriate topics include distribution, migration, status, behavior, ecology, population dynamics, habitat requirements, the effects of pollution, the techniques for identifying, censusing, sound recording and photographing birds in the field. Papers of general interest will be considered regardless of their geographic origin, but particularly desired are papers dealing with studies accomplished in or bearing on Rocky Mountain states and provinces westward, including Alaska and Hawaii; adjacent portions of the Pacific Ocean and Mexico; and western Texas.

Authors are provided 50 free reprints of each paper. Additional reprints can be ordered at author's expense from the Editor when proof is returned or earlier.

Good photographs of rare and unusual birds, unaccompanied by an article but with caption including species, date, locality and other pertinent information, should be submitted to Stephen A. Laymon, 3290 Ackley Road, Lakeport, CA 95453.